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Research Article

# CANCER KNOWLEDGE AND BELIEFS OF NONE-MEDICAL STUDENTS IN UAE: A CROSS-SECTIONAL STUDY

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**ABSTRACT**

The present study was designed to assess cancer knowledge and beliefs among none medical university students. A represented sample of non-medical university students was enrolled in the study. A descriptive quantitative survey was the study tool. The developed questionnaire was designed to be interview-administrated and SPSS 24 was used in data analysis. A correlation analysis was performed to test association. Independent t-test was applied to determine which factors might affect the knowledge score. A *p* value of less than 0.05 was considered significant. Ninety percent had a good knowledge score of cancer preventable risk factors, while 10.0% had poor knowledge score. Ninety-four percent considered that smoking is a cancer risk factor. Eighty-four percent of the participants are afraid of cancer. Early detection was the main selected factor (61.55%) to achieve a cure for cancer in the beliefs of the respondents. None-medical undergraduate university students in UAE have high knowledge of cancer preventable risk factors. The study revealed that emotional barriers might affect the early detection negatively. There is a critical need to maintain the high knowledge level of cancer risk factors, as having more public awareness will lead to less exposure to risk factors and better protection against the disease.

**Keywords**: Beliefs, cancer, knowledge, preventable risk factors, perceptions, university students.

## INTRODUCTION

Cancer is a virulent disease and one of the leading cause of mortality in many countries around the world[1-4]. Globally, nearly 1 in 6 deaths are due to cancer[5]. The death incidence of cancer increased world wild with an estimate that more than 6.6 million people have died annually with cancer[6, 7].

The incidence of cancer death more likely to increase with late-stage disease, poor enrolment in the screening program, and are less likely with healthy lifestyle[8, 9]. Numerous unhealthy lifestyle practices are correlated with cancer [2,3,10,11]. In developed countries, obesity, tobacco smoking, excessive alcohol are having unprecedented impact on public health and considered the most common causes of cancer [2,4,10,11]. Thus, lack of awareness about disease risk factors will reduce the chance of adopting a healthy lifestyle and disease prevention [2,11,12].

Cancer cure chance can be increased through early detection and effective treatment[1, 13]. Previous studies have highlighted that public the negative beliefs about cancer contribute to delay in help-seeking[1, 14, 15]. Moreover, fatalistic attitudes about cancer also been linked with lower medical help and poor screening uptake[1, 12, 16]. An individual's cancer attitude and beliefs may also affect whether they are referred promptly for the health checkup or whether they receive effective therapy promptly[14]. High levels of awareness and positive beliefs about cancer outcomes are more likely to encourage patients to demand referral or may be more likely to accept the enrollment in aggressive treatment[14, 17]. The delay in help-seeking behaviors is widely contributed to practical and emotional barriers[3]. Data about patient's barriers in seeking medical advice about cancer are necessary to design intervention strategies towards cancer prevention[3].

In UAE, cancer has been occupied the third place among the list of diseases causing death after cardiovascular diseases and accidents[18]. The UAE National Health Agenda 2021 has included cancer as one of the Key Performance Indicators (KPIs)[19]. The target is to reduce cancer deaths to about 64.2 per 100,000 of the population by 2021[19].

The majority of UAE cancer studies focus on certain types of cancer such as breast, colon and prostate cancers since they are the most common among the UAE population. However, the current study highlighted cancer in general. University students share the chance, like others in the community, of exposing to cancer risk factors in their daily life. The aim of this study was to investigate the knowledge and beliefs of cancer among non-medical students in UAE universities.

## MATERIALS AND METHODS

A descriptive survey was conducted among none-medical university students in UAE. Convenience sampling was used as the sampling method. The sampling method involved the distribution of the study questionnaire to the available students until the completion of the required sample size.

Roasoft online sample size calculator was used to calculate the minimum sample size required (340)[20]. The final estimated sample size was 360 to overcome non- responsive individuals and to avoid decreased sample size.

A structured questionnaire was designed by the researcher based on parameters to be evaluated as part of the study and by referring to previous literature[1, 11, 21]. The questionnaire was modified to make it convenient for students in UAE. The study was approved

by the AU research ethical committee (UG 2018.1.7) and was carried as per Declaration of Helsinki guidelines.

University lecturers and academics, with a wide range of professional experience, to establish the content validity of the questionnaire, reviewed the survey tool. Participants were informed that participation is voluntary. Feedback given by the pilot study population was considered and corrections were made accordingly. Questions adjustments were made to the questionnaire to improve its validity. 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.

Data analysis was conducted using SPSS version 24. Instituting identification numbers were given for all questionnaires. All questions were coded and then they were imported to SPSS for analysis. The objectives were also analyzed by descriptive analysis. The descriptive statistics included mean, median, standard deviation and frequency. For the knowledge items, the coding was established by giving 1 mark for the correct answers and zero for both the wrong answers and don't know choice. High knowledge level considered for score value above the mean/median score and low knowledge level considered for score value below the mean/median score. Results were presented as tables including numbers with percentages, or as graphical presentations. A *p* value of less than 0.05 was considered significant.

## RESULTS

### Socio-demographic data of the respondents

The response rate was 75.3%. The Mean (SD) of participants age is 21.14 (4.82) years. A total number of 271 university students were included in the study, which includes 111 males and 160 females. Sixty-eight percent of the participants were Arabs, 73.1% of the participants never attended a health campaign about cancer. Thirty-five percent of the study sample had a family history of cancer. The socio-demographic characteristic of the study participants is listed in a table 1.

### Beliefs data of the respondents about cancer

Eighty-four percent of the participants are afraid of cancer. Forty-two percent of the sample studied do not want to hear any more about cancer. Ninety-five percent emphasized the importance of including education about cancer in schools. The details of the responses of the UAE none-medical university students for beliefs questions are listed in a table 2.

### Knowledge data of the respondents about the preventable risk factors for cancer

Knowledge scores ranged from the lowest score of zero (0.4%) to the highest score of 21 (4.8%) (Fig.1). Mean (SD) of the knowledge score was 15.28(4.00).

Ninety percent had a good knowledge score while 10.0% had poor knowledge score as shown in figure (2). Ninety-four percent considered that smoking is a cancer risk factor. Fifty-eight percent agreed that stress could lead to cancer. The details of the responses of the students for knowledge questions are listed in a table 3.

### Preferred kind of knowledge needed for cancer

The most frequently preferred cancer knowledge type requested by the participants were more information about cancer (28.45%), followed by symptoms and signs (27.35%), cancer types and treatment (26.65%) and effect of cancer on the body (17.85%). Details are shown in figure 3.

### Respondents' beliefs towards factor affecting curing of cancer

Early detection was the main selected factor (61.55%) to achieve a cure for cancer in the beliefs of the respondents'. Only 11.25% believe that attending physicians is important for curing cancer. Details are listed in figure 4.

### Factors affecting participants' knowledge score

T-test, Spearman correlation test, Person correlation test was done to assess the factors affecting the knowledge. There was a significant difference between the male and female knowledge score (P=0.043). Moreover, participant attended health campaign was positively correlated with the knowledge score (p=0.017. rho=0.145) by having high score level compared with those did not attend health campaign. Details are listed in Table 4.

**Table 1: Social Demographic Data. The socio-demographic characteristics of the enrolled none-medical university students**

| Variables | Sub variables | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 111 | 40.8 % |
| | Female | 160 | 58.8 % |
| Nationality | Local | 60 | 22.1 % |
| | South Eastern Asia | 10 | 3.7 % |
| | Arab | 184 | 67.6 % |
| | Others | 18 | 6.7 % |
| Health campaign | Yes | 73 | 26.9 % |
| | No | 199 | 73.1 % |
| Smoker | Yes | 58 | 21.3 % |
| | No | 205 | 75.4 % |
| | Ex-smoker | 8 | 2.9 % |
| Family History | Yes | 95 | 34.9 % |
| | No | 177 | 65.1 % |

**Table 2: Beliefs toward cancer. Participants' positive beliefs response towards cancer**

| Questions | Answers | Frequency | Percent |
|---|---|---|---|
| Afraid of Cancer | Yes | 228 | 84.35 % |
| | No | 40 | 15.25 % |
| Would rather get any other disease than cancer | yes | 121 | 44.65 % |
| | No | 150 | 55.35 % |
| Don't want to hear any more about it | Yes | 111 | 41.7 % |
| | No | 155 | 57.9 % |
| Is it important to learn about cancer in schools? | Yes | 257 | 95.05 % |
| | No | 11 | 4.55 % |
| Is media the best source for cancer information? | Yes | 199 | 73.4 % |
| | No | 71 | 26.3 % |
| Cancer can be cured | Yes | 229 | 84.4 % |
| | No | 41 | 15.3 % |

**Table 3: Knowledge of cancer preventable risk factors. Participants correct response to Knowledge of cancer risk factors**

| Preventable Factors | Frequency | Percent |
|---|---|---|
| Avoid smoking | 256 | 94.1 % |
| Limiting exposures | 194 | 71.3 % |
| Avoiding exposure | 219 | 80.5 % |
| Modified food | 210 | 77.2 % |
| Avoid alcohol | 230 | 84.6 % |
| Food coloring | 234 | 86.0 % |
| Overweight | 191 | 70.2 % |
| Caloric intake | 182 | 66.9 % |
| Pesticide-treated | 185 | 68.0 % |
| Pollution | 221 | 81.3 % |
| Stress | 156 | 57.4 % |
| Endocrine disruption | 238 | 87.5 % |
| Physical inactivity | 185 | 68.0 % |
| Charred fish | 178 | 65.4 % |
| Unbalanced diet | 169 | 62.1 % |
| Genetics | 197 | 72.4 % |
| Lifestyle | 188 | 69.1 % |
| Drugs | 224 | 82.4 % |
| Ozone | 177 | 65.1 % |
| Immune System | 218 | 80.1 % |
| Physiological state | 173 | 63.6 % |

**Table 4: Factors affecting participants' knowledge score. The P value of the participants' knowledge scores for sociodemographic variables**

| Variables | Knowledge Score<br>P value |
|---|---|
| Marital status | 0.185 [s] |
| Age | 0.217 [P] |
| Gender | 0.043 [T] |
| Smoking | 0.953[s] |
| Attended workshop | 0.017[s] (rho -.0145) |
| Family history | 0.409[s] |

[s] Spearman Correlation Test, [P] Person correlation Test, [T] Independent T-Test, *P < 0.05

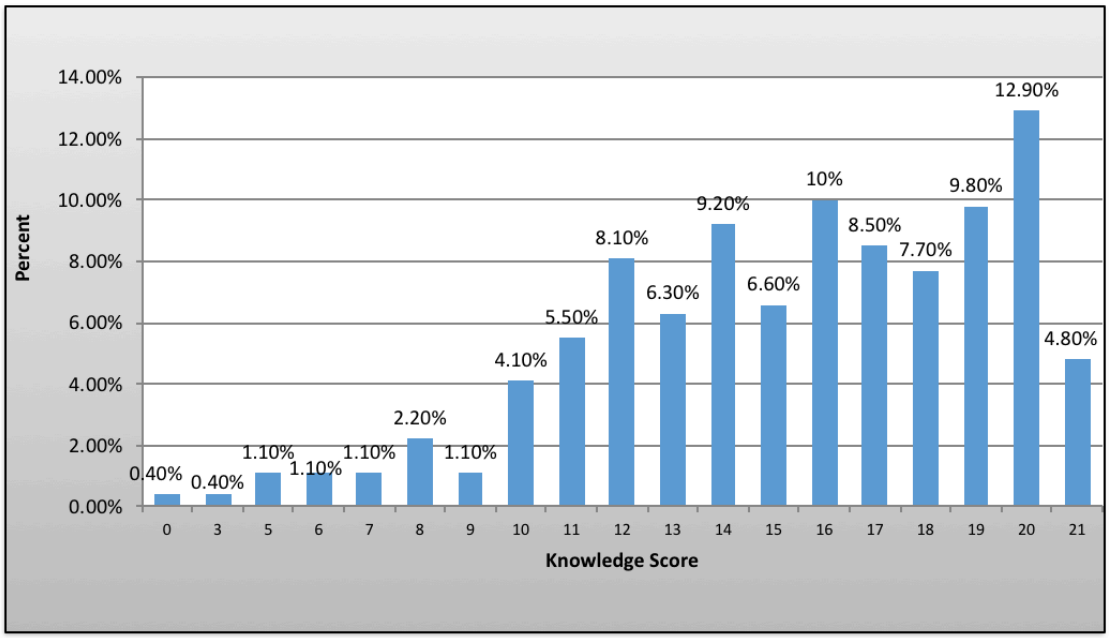


**Figure 1: Distribution of Knowledge Score. Distribution of participants' Knowledge score about cancer preventable risk factors**

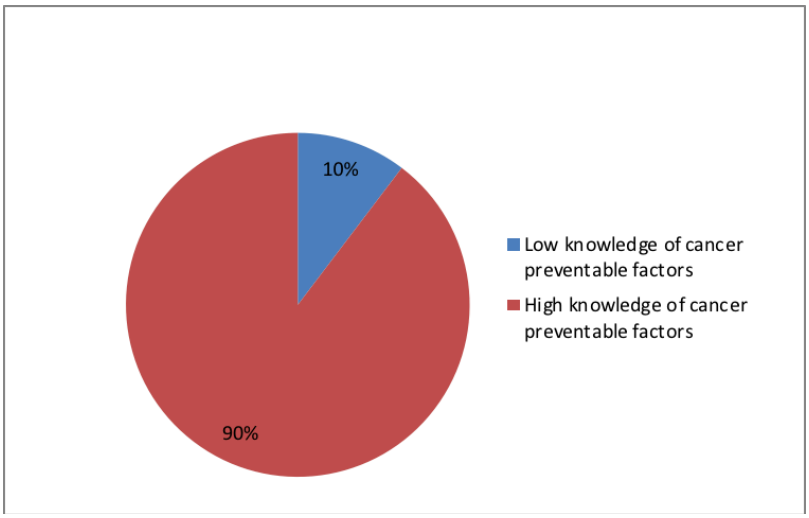


**Figure 2: Respondents Knowledge score about cancer preventable risk factors. Percentage of participants' Knowledge about the risk factors of cancer**

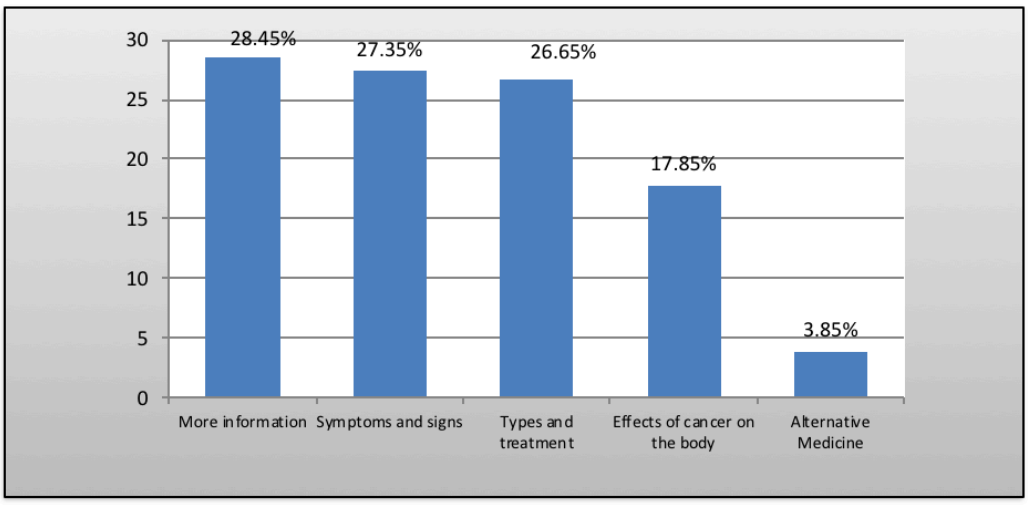


**Figure 3: Respondents preferred knowledge about cancer. Percentage of participants' preferred type of information regarding cancer**

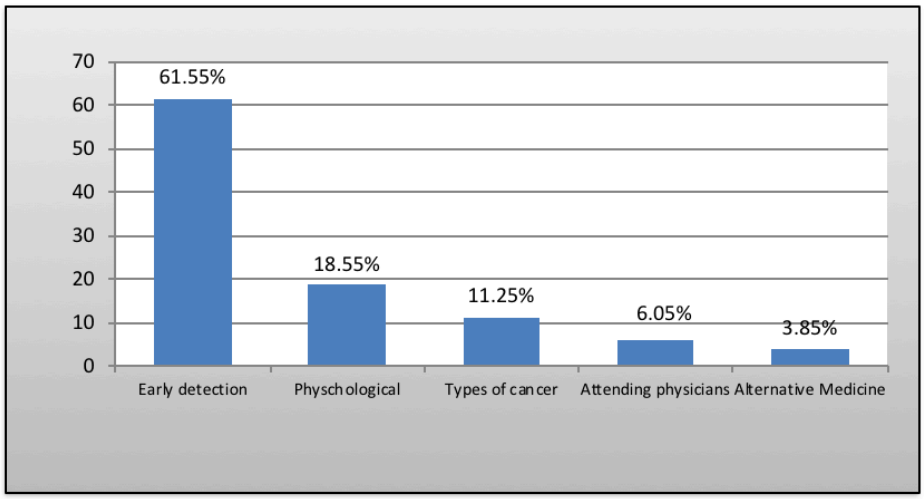


**Figure 4: Priorities in cancer curing. Percent of participants' selection of what is more important in curing cancer**

## DISCUSSION

Early detection of cancer is highly critical because of its impact on the stage of diagnosis and survival[22,23]. Early detection is possible when people have adequate knowledge and awareness of cancer symptoms and its warning signs[1-3,10,12,14,15,22,24,25]. Awareness and knowledge of cancer warning signs and risk factors will promote a healthy lifestyle and adequate cancer prevention[1-3,10,12,14,15,22,24, 25]. This study attempted to understand the beliefs and knowledge of preventable cancer risk factors that serve as a potential barrier to early screening and cancer prevention among UAE non-medical undergraduate university students.

The majority of the participants' stated being afraid of cancer (84.35%) and 41.7% do not want to hear any more information about cancer diseases. These findings identified emotional barriers that may delay seeking medical help. Another study assessing barriers to seek help among people attending primary care settings in Oman indicated that the most barriers were being scared[1]. All these findings support previous studies[26, 27]. In England, it was interesting that 'being worried about what the doctor might find' and 'being too scared' significantly reduced between after implementing a cancer awareness campaign addressed worry or fear specifically[28]. These findings advocate the need to implement national intervention strategies focusing on increasing the positive attitudes regarding cancer and the correction of fears barrier revealed in the current study.
In this study, it was noted that 84.4% of the participant's belief that cancer can be curable. While in Saudi Arabia 58.3% believes that most the cancers are curable in early stages[29]. An earlier study in the USA found a high percentage of the targeted community felt that most cancers were incurable[30]. These findings nowadays reflect global progress in cancer treatment and prevention. The incidence rate of cancer successful treatment and survival greatly associated with the early detection of the disease[31]. Positive beliefs toward the cure of cancer will influence positively the stage of diagnosis and detection.

It was encouraging to note that 90% of the participants with high knowledge of preventable risk factors for cancer. The results of the current study disagreed with others found that several protective lifestyle choices were incorrectly selected by the participants [32].

Tobacco smoking ranked the top risk factor (94.1%) to be prevented to avoid cancer. Our findings were consistent with other studies[10,15,21]. In contrast, stress was indicated as the lowest factor (57.4%) among cancer preventable risk factors. This result supports the findings from a study that showed the less preventable risk factors for cancer identified by participants was stress (39% )[21].

The most frequent preferred cancer knowledge type needed to be stated by the participants were more information about cancer (28.45%), followed by symptoms and signs (27.35%), cancer types and treatment (26.65%) and effect of cancer on the body (17.85%). Similar results revealed in Saudi Arabia when the majority indicate their willingness to know more information about cancer[15]. There is a critical need to come across the UAE public preferred cancer knowledge and information they like to know about. More information about cancer will reduce the emotional barriers revealed in the study that may delay early detection of cancer.

## CONCLUSION

In conclusion, the results of this study indicate that none-medical undergraduate university students in UAE have high knowledge of cancer preventable risk factors. Emotional barriers revealed in this study should be addressed in future cancer campaign, as having more positive beliefs will lead to better protection against the disease. Change in beliefs requires focused efforts in health education. Implementing well-developed cancer educational programs at a national level will improve the cancer literacy significantly. Moreover, intervention should be addressed to speed up the dissemination of cancer information. Furthermore, the Ministry of Higher Education may be requested to include continuous undergraduate cancer literacy program in the future strategic plans.

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