

# Awareness of lung cancer and its risk factors among population of bisha region

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## Abstract

**Background:** Regarding its case fatality rate in 2020, lung cancer is the leading cause of death among all types of cancers globally. Most of the risk factors that led to lung cancer were avoidable. The awareness of lung cancer among the population of Bisha region has not been explored before. This study aimed to assess the awareness of lung cancer and its risk factors, and its association with sociodemographic factors among Bisha population.

**Methods:** A cross-sectional study was conducted between January 16, and February 15, 2022, among 376 Saudi adults living in Bisha region. The data were collected by using a self-administered questionnaire which was developed by using Google Forms and distributed online. Data analysis was conducted using SPSS version 26. The descriptive statistics were represented with frequencies and percentages. Chi-square ( $\chi^2$ ) analysis and Fisher Exact test were used to compare categorical variables between the subgroups.

**Results:** This study shows a high level of awareness of lung cancer and its risk factors among the participants (93.4%). Analysis of sociodemographic factors associated with a high level of awareness showed the awareness among females was better than in males ( $P=0.006$ ), and the awareness among those who never smoked was higher than those who did smoke before ( $P=0.001$ ).

**Conclusions:** The level of community awareness was high about lung cancer and its risk factors. Health promotion programs significantly influence the level of awareness, and we recommend these programs be continued.

**Key Words:** lung cancer, risk factors, awareness

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## INTRODUCTION

Cancer remains the leading cause of mortality worldwide in both sexes combined. It accounted for nearly 10 million deaths in 2020 [1]. Lung cancer is still by far the most common cause of cancer-related death in 2020 counting to 1.80 million deaths and the second most common cancer incidence after breast cancer with 2.21 million new cases [2]. Social and lifestyle patterns that exist in economically developed populations are associated with increased mortality and morbidity of cancers [3]. Such as the aging of the population and increasing life expectancy, in addition to risky behaviours that can cause lung cancer and the most common one is smoking [4]. The evidence showed that tobacco smoking is the main etiological factor that causes lung carcinogenesis [5]. Other factors include exposure to radon gas and other ionizing radiation, exposure to carcinogens such as asbestos, arsenic, chromium, and nickel, air pollution, and genetic susceptibility [6].

In the Kingdom of Saudi Arabia (KSA), Lung cancer was the fourth most prevalent cancer among Saudi men and the seventeenth most common cancer among Saudi women in 2014 [7]. Statistics in KSA showed that lung cancer ranked as the seventh most common cancer, both in men and women [8]. Smoking was considered the most common risk factor for lung cancer (28.56%), followed by exposure to irritant materials (22.6%) [9]. Unfortunately, lung cancer does not become clinically apparent until it reaches an advanced stage, but

fortunately, lung cancer is a largely preventable disease, especially by focusing on health promotion interventions and improvements in public health education. We face challenges in finding local studies exploring the level of awareness about lung cancer in Saudi Arabia. The purpose of this study is to assess the awareness of lung cancer and its risk factors and to explore the association between the awareness and sociodemographic factors among Bisha population.

## METHODS

A cross-sectional study was conducted between January 16, and February 15, 2022. The study participants were Saudis, Bisha region residents, aged 18 years and older, and filled out the full survey. We excluded any participants younger than 18 years old, non-Saudis, or the residents outside Bisha region. Bisha region is found in the southwest of Saudi Arabia. It is located in the Asir province. Bisha city stands at an altitude of about 2,000 feet above sea level and it is inhabited by about 240 villages.

Non-randomized convenient sampling technique was adopted, and the structured questionnaire was designed by using Google form and distributed online through social media platforms mainly through WhatsApp groups. The structured questionnaire was designed to collect sociodemographic data; (age, sex, educational level, place of residence, smoking status, and subjective questions asked about lung cancer knowledge), in addition to nine questions that assess the awareness of lung cancer risk factors. A score of 0.0 for wrong answers and 1.0 for only one right answer was attributed to each question. The total score was out of 9 points; therefore, it was high awareness  $\geq 7$  points, moderate awareness  $\geq 4$  points, and low awareness  $\leq 3$  points.

The sample size was calculated by using online open-source software [10]. Assuming 50% was the awareness rate, and the population size of Bisha region was 204,491 (General Authority for Statistics, census 2017) [11]. The minimum sample size was 384 participants, which was estimated at 5% margin of error and 95% confidence level.

Data were analyzed by using IBM SPSS program (Statistical Package for the Social Science; IBM Corp, Armonk, NY) version 26. Descriptive variables were presented on frequency tables and percentages for

categorical variables. Mean and standard deviations were determined for numerical variables. Chi-square ( $\chi^2$ ) analysis and Fisher Exact test were used to compare categorical variables between the subgroups. The p-values  $<0.05$  were considered as statistically significant.

Institution review board approval was obtained from the ethical committee of the University of Bisha College of Medicine. Informed consent was obtained from all participants at the beginning of the questionnaire, the study aims were clarified to them, and the participants' identification remained anonymous.

## RESULTS

Three hundred and seventy-six respondents participated in this study, 233 (62%) were males and 143 (38%) were females. Their mean age was  $33 \pm 12$  years. The majority of the participants 275 (73.1%) had a diploma or bachelor's degree. Two-thirds were living in Bisha city and only 90 subjects (23.9%) were living outside the city, specifically in its villages. Most subjects had previous knowledge about lung cancer 271 (72.1%). However, fewer respondents have a family history of lung cancer 14 (3.7%), and only 45 subjects were smokers (12%), as shown in (Table 1).

**Tab.1.** Socio-demographic characters of participants

Characteristics	Category	Frequency (n)	Percent (%)
Age	Mean $\pm$ SD	33 $\pm$ 12 years	
Sex	Male	233	62
	Female	143	38
Education level	Primary school	5	1.3
	Intermediate school	6	1.6
	Secondary school	70	18.6
	Bachelor/diploma	275	73.1
	Postgraduate	20	5.3
Place of residence	Bisha city	275	76.1
	Bisha village	90	23.9
Do you know about lung cancer?	Yes	271	72.1
	No	45	27.9

Family history of lung cancer	Yes	14	3.7
	No	362	96.3
Smoking status	Nonsmoker	295	78.5
	Smoker	45	12
	Ex-smoker	36	9.6

The level of awareness of lung cancer among the participants is shown in (Table 2). The cumulative frequency of moderate and high levels of awareness was (93.4%).

**Tab.2.** Level of awareness of lung cancer among the participants from Bisha population

Level of awareness	Frequency (n)	Percent (%)
Low	25	6.6
Moderate	227	60.4
High	124	33

Bivariate analysis of sociodemographic factors with levels of awareness of lung cancer and its risk factors shows a high level of awareness among females that was better than in males ( $P=0.006$ ), and the awareness among those who never smoked was higher than those who did smoke before ( $P=0.001$ ), as shown in (Table 3).

**Tab.3.** Factors associated with the level of awareness among study subjects

Variable		High awarene ss	Low awarene ss	$\chi^2$	P- value
		n (%)	n (%)		
Age	< 33 years	183 (93.8)	12 (6.2)	0.16	0.689
	$\geq$ 33 years	168 (92)	13 (8)		
Sex	Male	211 (90.5)	22 (9.5)	7.7	0.006*
	Female	140 (97.9)	3 (2.1)		
Education level	Before university	74 (91.3)	7 (8.7)	0.66	0.416
	At least in University	277 (93.8)	18 (6.2)		
Place of residence	Bisha city	270 (94.4)	16 (5.6)	2.14	0.143
	Bisha villages	81 (90)	9 (10)		
Smoking status	Never smoked	282 (95.5)	13 (4.5)	11.09	0.001*
	Smoked	69 (85.1)	12 (14.9)		

$\chi^2$  = chi-square test.

\* Statistically significant (p-values <0.05).

## DISCUSSION

This study shows a high level of awareness about lung cancer and its risk factors among the participants (93.4%). This may be due to the anti-smoking promotion programs and smoking cessation initiatives that were held effectively by the Ministry of Health in KSA. Furthermore, most of our participants were at least at the university level, this could explain the high level of awareness related to lung cancer. Similar studies showed high levels of awareness among university students were conducted in Jordan and Malaysia [12,13].

In the present study, females had better awareness than males. Women may have been more aware of smoking because of their stronger interest in health-related topics because of cultural expectations for females to be involved in childcare and health care as we found in the previous Jordanian study among college students [12]. The same findings have been reported in two published studies which were conducted in the United Kingdom in different populations, among students' population and British adults [4,14].

Our findings from the current study showed that the awareness of lung cancer and its risk factors among those who never smoked was higher than both current smokers and ex-smokers. Most of our respondents were non-smokers and this might explain their preferences to not start smoking because they have enough awareness about smoking serious sequences, and lung cancer at the top of the list. This finding agreed with the previous Jordanian study which showed that those who never smoked were more knowledgeable than former smokers and current smokers about the health hazards of smoking [12].

This study has limitations which should be noted. Since this study is a descriptive cross-sectional study, we could not assess the causal inferences. There might be a possibility of sampling bias because we used a non-probability convenient sampling method for recruiting the participants.

## CONCLUSION

The findings from this study showed that most of the respondents had a high level of

awareness about lung cancer and its risk factors. Females had better awareness than males and those who never smoked than whoever smoked. The impact of lifestyle on cancer rates has the potential to be reduced through the translation of this existing awareness into prevention techniques, along with improvements in public health education. Health promotion programs significantly influence the level of awareness, and we recommend these programs be continued.

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## Conflict of interest

One of the author (Elhadi Miskeen) is an editor in the journal, but he not participating in any process of the publication.

## Ethical approval

Not required.

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