Awareness of Smoking as a Risk Factor for Bladder Cancer in Taif City

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ABSTRACT

The second most common urologic malignancy worldwide is bladder cancer. There are two main bladder cancers: the squamous cell carcinomas (SCC), where urinary schistosomiasis is an endemic disease and the transitional cell carcinomas (TCC), which is related to cigarette smoking. Rare types of bladder cancer include small cell carcinoma, primary lymphoma, carcinosarcoma, and sarcoma. The current study aims to determine the Awareness of smoking as a risk factor for bladder cancer among the population in Taif city. this study is a cross-sectional study, and it will be done by the collection of data via a questionnaire containing several questions from doctors. This study will be carried out in Taif city population. This study includes a total of 223 participants who met the inclusion criteria and were included in the final analysis, and 9 participants were excluded because they live outside Al-Taif. From the total sample, the majority were aged between 18 and 39-year-old (70.85%), have a bachelor's degree or higher (71.30%), and (51.1%) were males. In terms of smoking status, 52 (23.32%) were current smokers, 16 (7.17%) were x-smokers, while a large percentage were not smokers 155 (69.51%). For the participants' knowledge about the risks of smoking, (99.55%) know that smoking can cause lung cancer, (97.76%) know it can lead to heart diseases while only tow-third think that it can lead to bladder cancer. The total smokers (36/52) think that smoking can cause bladder cancer (68.16%) those who think that smoking can cause lung cancer.

Keywords: *Urologic malignancy, Bladder cancer, Smoking, Risk factors*

INTRODUCTION

The second most common urologic malignancy worldwide is bladder cancer, mainly transitional cell carcinoma, but it is the seventh most common malignancy in men and the seventeenth in women (Nazir *et al.*, 2019; Algarni *et al.*, 2020; Almehmadi *et al.*, 2020). There are two main bladder cancers: the squamous cell carcinomas (SCC), which are more frequently seen in some Middle Eastern and African countries, where urinary schistosomiasis is an endemic disease and the transitional cell carcinomas (TCC), which is related to cigarette smoking and is most prevalent in Western and industrialized countries. Rare types of bladder cancer include small cell carcinoma, carcinosarcoma, primary lymphoma, and sarcoma (Gowing *et al.*, 2015). Smoking is the single greatest factor responsible for the development of bladder cancer, followed by extensive occupational exposure to arylamines and causes about 50% and 31% of cases in men and women, respectively (Moradi-Lakeh *et al.*, 2015; Algabbani *et al.*, 2018; Chang *et al.*, 2021). In general, smokers have an increased risk of bladder cancer development when compared to non-smokers, which depends on the number

of consumed cigarettes (Nuryunarsih *et al.*, 2021). A prospective observational study was done and the results showed that only 118 of 202 patients (58.4%) stated that they knew that the risk factor for bladder cancer is smoking, as opposed to 94.6, 91.6, and 92.1% who stated that smoking is also related to lung cancer, heart, and vascular problems, and chronic obstructive pulmonary disease (Lam *et al.*, 2007). A cross-sectional study was done and results were with regard to respondent perceptions of smoking as a risk factor for bladder, lung cancer, and renal. 36% of the sample reported that smoking was a risk factor for bladder cancer and 32% reported that smoking was a risk factor for renal cancer compared to 98% who reported that smoking was a risk factor for lung cancer (Terres *et al.*, 1994).

A cross-sectional survey was done and the result reported that the most respondents (74%) had a history of cigarette use and response rate was 70% (344 of 492 eligible participants). 17% of all respondents were diagnosed to be smoking. Smokers with a new diagnosis of bladder cancer were almost 5 times likely to stop smoking in the general population (48% v 10%). The advice of the urologist and the bladder cancer diagnosis led to most of the cessation. When the urologist was the source of their understanding, respondents were more likely to endorse smoking as a risk factor for bladder cancer (Godtfredsen *et al.*, 2008).

Aims/Objectives of the study
The current study aims to determine smoking awareness as a risk factor for bladder cancer in Taif city, KSA.

MATERIALS AND METHODS

Work plan: This study will be divided into several phases as follows:
Phase 1: Optimization of sample collection and sampling.
Phase 2: Data collection.
Phase 3: Computer analysis and writing the research.
Methodology: Cross-sectional study through online surveys manuscript.
Hypothesis: Smokers Males and females are not aware of the association between bladder cancer and smoking. Inclusion criteria: Male and female smokers at any age. Exclusion criteria: non-smoker population outside Taif city. Sample size: At least 200 samples for a confidence level of 95% and a confidence interval of 5%. Analysis plan: Data will be analyzed using SPSS version 23.0 (SPSS, Inc, Chicago, IL, USA).

RESULTS AND DISCUSSION

The study was done to assess the awareness of the relationship of smoking with lung cancer, cardiovascular diseases, and bladder cancer, which included 232 participants who gave consent to participate. The participant's sociodemographic characteristics showed that 69.8% were from the age group 18-39 years, 19.4% from 40-49 years, 9.1% from 50-59 years, and the remaining 1.7% belonged to 60 years and above. The gender distribution showed that 47.8% were females and 52.2% were male participants. The educational qualification of the participants showed that 69.8% had a graduate degree and 0.9% had a Master's degree. In this study, 23.3% reported that they are current smokers, and 7.8% were previous smokers **(Table 1)**. The awareness regarding the relationship between smoking and lung cancer was in this study was found to be 99.1% (n=230) **(Figure 1)**. When we assessed the relationship of this awareness with different baseline characteristics of the participants, there was no statistically significant association observed with age (p=0.728), gender (p=0.174), educational level (p=0.929), and smoking status (p-0.635) **(Table 2)**. The awareness regarding the relationship between smoking and CVS diseases was about 97.8% (n=227) **(Figure 1)**. The assessment of the relationship of this relationship with various baseline characteristics of the participants showed that there was no statistically significant association observed except with the smoking status. Participants who had never smoked were comparatively more aware of this relationship of smoking with CVS diseases (99.4%) than current smokers (98.1%) and previous smokers (83.3%) **(Table 3)**. The assessment of awareness of the relationship between bladder cancer and smoking showed that only 67.7% (n=157) were aware of this **(Figure 1)**. When we compared this awareness with various baseline characteristics, there was no statistically significant association observed with age (p=0.205), gender (p=0.381), educational qualification (p=0.152), and smoking status (p=0.976) **(Table 4)**. When we analyzed the source of this information about the awareness of these relationships, it was found that social media or the Internet was the most common source (31.5%), followed by information from doctors or other health professionals (27.2%), from school or college (21.6%), television (6.5%) from personal experience (6%), journal or magazines or medical textbooks (4.7%) **(Figure 1)**.

Table 1. Baseline characteristics of the participants

		Frequency	Percent
Age	18-39	162	69.8
	40-49	45	19.4
	50-59	21	9.1
	60 and more	4	1.7
Gender	Female	111	47.8
	Male	121	52.2
Educational Qualification	Primary	2	0.9
	Middle school	12	5.2
	High school	54	23.3
	Graduate	162	69.8
	Masters	2	0.9
Smoking status	Never-smoker	160	69.0
	Previous smoker	18	7.8
	Current Smoker	54	23.3

Table 2. Association of awareness regarding smoking and lung cancer with various baseline characteristics

			Relationship of smoking and lung cancer		Total	P value
			Not aware	Aware		
Age (in Years)	18-39	N	1	161	162	0.728
		%	0.6	99.4	69.8	
	40-49	N	1	44	45	
		%	2.2	97.8	19.4	
	50-59	N	0	21	21	
		%	0.0	100.0	9.1	
	60 and more	N	0	4	4	
		%	0.0	100.0	1.7	
Gender	Female	N	0	111	111	0.174
		%	0.0	100.0	47.8	
	Male	N	2	119	121	
		%	1.7	98.3	52.2	
Education al level	Primary	N	0	2	2	0.929
		%	0.0	100.0	0.9	
	Middle school	N	0	12	12	
		%	0.0	100.0	5.2	
	High school	N	0	54	54	
		%	0.0	100.0	23.3	
	Graduate	N	2	160	162	
		%	1.2	98.8	69.8	
	Masters	N	0	2	2	
		%	0.0	100.0	0.9	
Smoki	Non-smoker	N	2	158	160	0.635
		%	1.3	98.8	69.0	
	Previous	N	0	18	18	

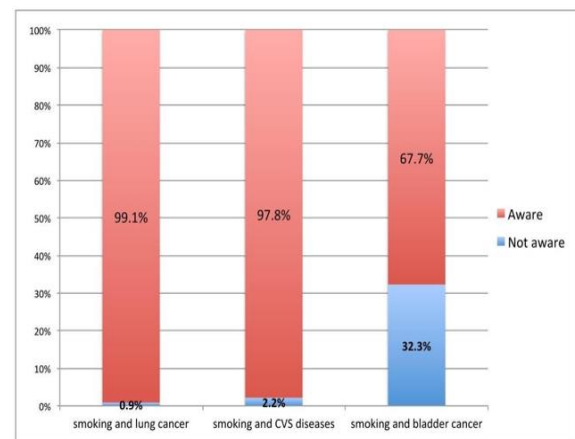|					
smoker	%	0.0	100.0	7.8	
Smoker	N	0	54	54	
	%	0.0	100.0	23.3	

Table 3. Association of awareness regarding smoking and CVS diseases with various baseline characteristics

			Relationship of smoking and CVS diseases		Total	P-value
			Not aware	Aware		
Age (in years)	18-39	N	4	158	162	
		%	2.5	97.5	69.8	
	40-49	N	0	45	45	
		%	0.0	100.0	19.4	0.608
	50-59	N	1	20	21	
		%	4.8	95.2	9.1	
	60 and more	N	0	4	4	
		%	0.0	100.0	1.7	
Gender	Female	N	1	110	111	
		%	0.9	99.1	47.8	0.208
	Male	N	4	117	121	
		%	3.3	96.7	52.2	
Educational level	Primary	N	0	2	2	
		%	0.0	100.0	0.9	
	Middle school	N	0	12	12	
		%	0.0	100.0	5.2	
	High school	N	1	53	54	0.978
		%	1.9	98.1	23.3	
	Graduate	N	4	158	162	
		%	2.5	97.5	69.8	
	Masters	N	0	2	2	
		%	0.0	100.0	0.9	
Smoking	Non-smoker	N	1	159	160	
		%	0.6	99.4	69.0	
	Previous smoker	N	3	15	18	
		%	16.7	83.3	7.8	<0.001
	Smoker	N	1	53	54	
		%	1.9	98.1	23.3	

Table 4. Association of Awareness regarding smoking and bladder cancer with various baseline characteristics

			Relationship of smoking and bladder cancer		Total	P value
			No	Yes		
Age (in years)	18-39	N	46	116	162	
		%	28.4	71.6	69.8	
	40-49	N	20	25	45	0.205
		%	44.4	55.6	19.4	
	50-59	N	8	13	21	

Right column continuation of Table 4:

			No	Yes		
		%	38.1	61.9	9.1	
	60 and more	N	1	3	4	
		%	25.0	75.0	1.7	
Gender	Female	N	39	72	111	
		%	35.1	64.9	47.8	0.381
	Male	N	36	85	121	
		%	29.8	70.2	52.2	
Educational level	Primary	N	0	2	2	
		%	0.0	100.0	0.9	
	Middle school	N	7	5	12	
		%	58.3	41.7	5.2	
	High school	N	14	40	54	
		%	25.9	74.1	23.3	
	Graduate	N	54	108	162	0.152
		%	33.3	66.7	69.8	
	Masters	N	0	2	2	
		%	0.0	100.0	0.9	
Smoking	Non-smoker	N	51	109	160	
		%	31.9	68.1	69.0	
	Previous smoker	N	6	12	18	0.976
		%	33.3	66.7	7.8	
	Smoker	N	18	36	54	
		%	33.3	66.7	23.3	

Figure 1. Awareness of the relationship between cancer, CVS and smoking

The prevalence of smoking has dramatically increased worldwide despite the efforts to combat its use through various risk awareness strategies and tobacco control policies (Gowing *et al.*, 2015; Nazir *et al.*, 2019). In Saudi Arabia, reports from two national surveys conducted in the year 2013 (Moradi-Lakeh *et al.*, 2015) and 2018 (Algabbani *et al.*, 2018) have shown that the prevalence of tobacco smoking is found to be 12.2% and 21.4%, respectively, which is alarming and has become a serious public health concern. Smoking increases the risk of many diseases, including pneumonia, cardiac attacks, strokes, chronic obstructive pulmonary disease (COPD) (including emphysema and chronic bronchitis), and several cancers such as lung cancer,

oropharyngeal cancers, bladder cancer, and pancreatic cancer. It is also a risk factor for many peripheral arterial diseases and hypertension (Chang *et al.*, 2021; Nuryunarsih *et al.*, 2021). The awareness regarding the health risks of smoking is essential to help smokers to quit and non-smokers not to take up the habit. Quitting smoking at any age is found to have immediate health benefits and also in reducing the risk of lung disorders, cardiovascular diseases, and some smoking-related cancers (Terres *et al.*, 1994; Lam *et al.*, 2007; Godtfredsen *et al.*, 2008). Among smoking-related cancers, lung cancer is one of the leading causes of death in tobacco smokers (Youlden *et al.*, 2008; Cheng *et al.*, 2016). In our study, most of the participants were aware of this relationship. A study conducted by Trofor *et al.* (2018) among tobacco users in six European reported that awareness of the relationship between smoking and lung cancer was as follows: Germany (89.8%), Greece (96.1%), Hungary (83.4%), Poland (87.4%), Romania (90.2%) and Spain (93.1%). In Saudi Arabia, a study done among medical students reported that only 12.6% of the students knew that the risk of dying from lung cancer reduces to half for a person who stops smoking (Jradi & Al-Shehri, 2014). Another study conducted in the city of Riyadh among medical students showed that 94% of the students were having good knowledge of the relationship between smoking and lung cancer (Al-Haqwi *et al.*, 2010). A study conducted in Iraq reported that 80.6% of smokers were aware of smoking's health risk on lung cancer (Dawood *et al.*, 2016). The pathogenesis behind lung cancer and smoking is not completely defined. The inflammation produced due to cigarette smoke is found to play a major role in carcinogenesis (Prendergast, 2008). Tobacco smoking is found with a 2-4 fold increase in the risk of cardiovascular diseases (CVDs) and greater than 75% excess mortality rate from CVS disease (Lakier, 1992). The lack of awareness of the CVDs and their risk factors are important barriers in the prevention and treatment of these diseases. Our study findings showed that 97.8% of the participants were aware of the risk of smoking with CVDs. Despite the awareness, all the smokers (100%) in this study continue to smoke. A recent study done in the city of Riyadh among Saudi citizens showed that approximately 75% of the participants considered smoking as a risk factor for CVDs (Mujamammi *et al.*, 2020). The prevalence of CVDs in Saudi Arabia is rising, and tobacco smokers are at increased risk of suffering from morbidities and mortalities related to it (Alhabib *et al.*, 2020). A study done by Ahmed *et al.* (2017) found that smoking is a modifiable risk factor for 20% of people having CVDs. It is also evident that involuntary exposure to tobacco smoke (passive smoke) in non-smokers increases the risk of morbidity and mortality from CVDs (Barnoya & Glantz, 2005; US Department of Health and Human Services, 2006). It is estimated that every year throughout the world, more than 350,000 people are diagnosed with bladder cancer (Bray *et al.*, 2018). Despite the clear evidence of the presence of numerous carcinogenic compounds in cigarette smoke, it is one of the second leading causes of mortality in cancer patients (Bray *et al.*, 2018). There is authentic evidence that tobacco smoking is an important risk factor for developing bladder cancer (Zeegers *et al.*, 2000; Simonis *et al.*, 2014). Our study findings showed the awareness regarding the relationship between bladder cancer and smoking is not that

high compared to awareness of the relationship between lung cancer and CVDs. According to a report in 2004, bladder cancer is the most common genitourinary cancer in Saudi Arabia (Abomelha, 2004). It is reported that screening for bladder cancer is less compared to other cancers, which could be related to the overall low incidence compared to other smoking-related cancers (Krabbe *et al.*, 2015). It is very clear from researches that smoking is a modifiable risk factor for many diseases, including lung cancer, bladder, and CVDs. The findings of this study show that most participants were aware of the harmful effect of smoking and its relationship with various diseases. Despite the increased awareness, smokers continue to smoke, and there is a need to understand different barriers to quit smoking. It is imperative to know about various risk factors, especially modifiable risk factors, to make better lifestyle choices.

CONCLUSION

This study demonstrated a higher level of awareness regarding smoking and its relationship with lung cancer and coronary heart diseases, but the awareness regarding bladder cancer was moderate among the participants. Efforts should be made to transform this high awareness to encourage positive attitudes towards smoking cessation and lifestyle behavioral changes in smokers. This study's findings would help health policymakers and health care professionals understand the current awareness regarding smoking and its relationship with various diseases. This understanding could be utilized to plan tobacco control policies and other alternative strategies to minimize tobacco usage.

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