Saudi patient knowledge and awareness regarding smoking as a risk factor for urological diseases

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Aim: Our aim was to evaluate Saudi patient knowledge and awareness regarding smoking as a risk factor for bladder cancer, kidney cancer, and erectile dysfunction (ED).

Settings and Design: This quantitative cross-sectional study was conducted across three major tertiary hospitals in Riyadh, the capital city of Saudi Arabia.

Material and Methods: A self-administered questionnaire was distributed to 539 patients in the urology outpatient clinic.

Statistical Analysis: Data were analyzed using the Statistical Package for the Social Studies 21.0. For descriptive statistics, the frequency was calculated for all study variables. Chi-squared test was used for categorical variables. \( P < 0.05 \) was considered statistically significant.

Results: A total of 539 urological patients completed the questionnaire. There were 460 (85.4%) male and 79 (14.6%) female respondents. Only 60.9%, 41.2%, and 36.9% of participants were aware that smoking was a risk factor for ED, kidney cancer, and bladder cancer, respectively.

Conclusions: The knowledge and awareness were low among urological patients regarding smoking as a risk factor for urological diseases.

Keywords: Bladder cancer, erectile dysfunction, knowledge and awareness, Saudi Arabia, smoking

INTRODUCTION

Bladder cancer is the eighth most common cancer affecting Saudi males.\(^{(6)}\) It causes substantial health care burden with one of the highest per-patient costs.\(^{(2)}\) Smoking increases bladder cancer risk by up to four times and causes an estimated 50% of cases.\(^{(3-5)}\) Smoking also increases the risk of erectile dysfunction (ED).\(^{(6-8)}\)

Despite a 21.4% smoking prevalence,\(^{(9)}\) Saudi Arabia has few studies assessing knowledge regarding smoking as a risk factor for urological diseases. We explored the knowledge of Saudi patients in the urology clinic about related morbidities of smoking and determined the age of smoking onset for the best age for preventive education.
MATERIAL AND METHODS

This was a questionnaire-based multicenter quantitative cross-sectional study done in the urology outpatients department in three tertiary hospitals between January 2019 and March 2019.

An Arabic self-administered questionnaire was developed based on previous studies [Appendix 1]. The questionnaire contained 16 questions over two pages divided into three sections. The first section included demographic characteristics such as age, gender, education level, and history of cancer. The second section included assessment of knowledge regarding smoking as a risk factor for bladder cancer, kidney cancer, lung cancer, mouth cancer, stroke, heart disease, chronic obstructive pulmonary disease (COPD), and ED. The third section included smoking status and whether smokers were advised by their physician to quit.

The study included 539 patients; the questionnaire was distributed in the urology outpatient clinic. Participants’ anonymity was ensured by assigning each participant with a code number. No incentives or rewards were given to participants. A consent form was provided, which included the purpose of the study and information on the right to withdraw at any time without completing the questionnaire.

Ethical approval was obtained from the institutional review board at XXX University. Data were analyzed using Statistical Package for Social Studies (SPSS 21; Chicago IL, USA). Chi-squared test was used for categorical variables. P < 0.05 was considered statistically significant.

RESULTS

A total of 539 patients completed the questionnaire. There were 460 (85.4%) male and 79 (14.6%) female respondents [Table 1]. illustrates the participants’ demographic characteristics and history of cancer.

Respondents were more aware of smoking being a risk factor for respiratory and cardiovascular diseases than urological diseases. Knowledge of the risk was ≥80% for heart and lung diseases. However, knowledge of the risk was 60.9% for ED, 41.2% for kidney cancer, and only 36.9% for bladder cancer [Table 2].

Regarding the detailed analysis of participants’ smoking status, 76.1% of the respondents did not smoke, 10.6% were ex-smokers, and 13.4% were current smokers. Most respondents with smoking history had started smoking before the age of 22 years (82%), and most of them smoked >20 cigarettes a day [Table 3]. The attending urologist advised the patient to quit smoking for 47 (65.3%) of current smokers, and 25 (34.7%) respondents reported that no such advice was given by their urologist.

The perception of smoking as a risk factor for bladder cancer showed a significant difference for age, while kidney cancer showed a significant association with smoking status (<0.001). However, perception of ED as a risk factor was significantly associated with education level [Table 4].

DISCUSSION

The regular use of tobacco increases the risk of multiple urological diseases. The pathogenic characteristics and effects of tobacco may serve to be a major contributor toward genitourinary diseases.

In our study, only 36.9% and 41.2% respondents were aware that smoking was a risk factor for bladder cancer and kidney cancer, respectively, compared to 86.1% and 81.4% who were aware of it as a risk factor for lung cancer.

Table 1: Demographic characteristics and cancer status of respondents

| Demographic characteristics | Frequency (%) |
|-----------------------------|---------------|
| Gender                      |               |
| Male                        | 460 (85.3)    |
| Female                      | 79 (14.7)     |
| Age                         |               |
| 18-24                       | 44 (8.2)      |
| 25-44                       | 198 (36.7)    |
| 45-64                       | 179 (33.2)    |
| 65-84                       | 107 (19.9)    |
| 85-95                       | 11 (2.0)      |
| Education                   |               |
| Illiterate                  | 37 (6.9)      |
| Elementary school           | 64 (11.9)     |
| Middle school               | 61 (11.3)     |
| High school                 | 148 (27.5)    |
| Diploma                     | 41 (7.6)      |
| Bachelor’s degree           | 154 (28.6)    |
| Master’s degree             | 20 (3.7)      |
| Doctorate                   | 14 (2.6)      |
| History of cancer           |               |
| No                          | 516 (95.7)    |
| Yes                         | 23 (4.3)      |

Table 2: Knowledge and awareness of respondents

| Knowledge of smoking a risk factor for various diseases | Frequency (%) |
|-------------------------------------------------------|---------------|
| Lung cancer                                           | 464 (86.1)    |
| Heart disease                                         | 443 (82.2)    |
| COPD                                                  | 439 (81.4)    |
| Mouth cancer                                          | 414 (76.8)    |
| Erectile dysfunction                                  | 328 (60.9)    |
| Stroke                                                | 318 (59)      |
| Kidney cancer                                         | 222 (41.2)    |
| Bladder cancer                                        | 199 (36.9)    |

COPD: Chronic obstructive pulmonary disease

Table 3: Detailed smoking status of respondents

| Smoking status           | Frequency (%) |
|--------------------------|---------------|
| Non-smoker               | 460 (85.3)    |
| Ex-smoker                | 48 (9.1)      |
| Current smoker           | 41 (7.6)      |
| Total                    | 539 (100)     |

Table 4: Perception of smoking as a risk factor for various diseases

| Disease                  | Frequency (%) |
|--------------------------|---------------|
| Lung cancer              |               |
| Heart disease            |               |
| COPD                     |               |
| Mouth cancer             |               |
| Erectile dysfunction     |               |
| Stroke                   |               |
| Kidney cancer            |               |
| Bladder cancer           |               |

P < 0.001
Table 3: Smoking status, smoking habits, and characteristics of current smokers and ex-smokers

| Smoking status and smoking habits | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Nonsmoker                        | 410       | 76.1       |
| Current smoker                   | 72        | 13.4       |
| Ex-smoker                        | 57        | 10.6       |

| Smoking status and smoking habits | Number of current smokers | Number of former smokers |
|----------------------------------|---------------------------|--------------------------|
| Age of smoking onset             |                          |                          |
| 13-17                            | 20                       | 18                       |
| 18-22                            | 42                       | 26                       |
| 23 and above                     | 10                       | 13                       |
| Number of cigarettes consumed per day |              |                          |
| 1-9                              | 3                        | 18                       |
| 10-19                            | 24                       | 17                       |
| 20-29                            | 38                       | 16                       |
| 30 and above                     | 7                        | 6                        |
| Years of smoking                 |                          |                          |
| 1-10                             | 19                       | 16                       |
| 11-20                            | 22                       | 26                       |
| 21-30                            | 9                        | 8                        |
| 31 and above                     | 22                       | 7                        |

Table 4: Respondent characteristics associated with perception of smoking as a risk factor for bladder cancer, kidney cancer, and erectile dysfunction

|                        | Bladder cancer | Kidney cancer | Erectile dysfunction |
|------------------------|----------------|---------------|---------------------|
| Gender                 | 0.887          | 0.392         | 0.109               |
| Age                    | 0.031*         | 0.260         | 0.272               |
| Education              | 0.235          | 0.604         | 0.019*              |
| History of cancer      | 0.741          | 0.878         | 0.527               |
| Smoking status         | 0.093          | 0.0003*       | 0.933               |

*Significant P (<0.05)

and COPD, respectively, similar to previous studies. However, 60.9% were aware that smoking was a risk factor for ED, which is significantly higher than previous studies. Clearly, our study shows that the knowledge of smoking as a risk factor for urological diseases was not optimal among participants. A greater proportion of respondents were aware that smoking could be a risk factor for major respiratory diseases; however, awareness regarding smoking as a risk factor for urological diseases was low.

Perception of smoking as a risk factor for bladder cancer, kidney cancer, and ED showed no statistically significant difference for gender, which is similar to certain previous studies while contradicting other studies that showed variability with gender. Furthermore, age showed a statistically significant difference for the perception of smoking as a risk factor for bladder cancer, which is not consistent with the literature. However, such an association was not found for kidney cancer and ED, similar to previous studies.

Education level showed a significant association with perception of smoking as a risk factor for ED, which is similar to one previous study but contradicts another study. The perception of smoking as a risk factor for bladder cancer showed no association with smoking status, similar to some studies but contradicting others. Perception of smoking as a risk factor for kidney cancer was associated with smoking status, consistent with one study but not with others. Perception of smoking as a risk factor for ED showed no association with smoking status, which is not consistent with previous studies.

In summary, the perception among respondents regarding smoking as a risk factor associated with the above-mentioned diseases was unrelated to their gender as well as their history of cancer. In contrast, education level, age, and smoking status were found to be significantly associated with the knowledge regarding smoking as a risk factor for the diseases.

In our study, only 65.3% of smokers were advised to quit smoking by their urologist, which is considered low. Each physician should ideally be a health advocate, and modifiable risk factors should be given particular attention. Thus, this study suggests that more effort is needed from urologists in educating their patients regarding the risks of smoking. In busy circumstances, preventive education can be implemented through minimal effort through flyers and waiting room television.

Current smokers and ex-smokers represented 24% of the respondents. Most respondents with smoking history started smoking before the age of 22 years (82%). This might suggest that the best timing to begin smoking awareness programs is during high school education.

A limitation of our study is the limited target population, which might limit the generalizability of the results to the general population. Despite this limitation, to our knowledge, this is the only study conducted in Saudi Arabia on patient knowledge regarding the association of smoking with bladder cancer, kidney cancer, and ED.

CONCLUSIONS

Patient awareness about smoking as a risk factor for urological diseases is low. Further awareness campaigns about the risks of smoking need to target these diseases. Before the age of 22 years might be the most effective timing to implement age-targeted campaigns. Physicians should spend extra effort in educating their patients about the risks of smoking.
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Conflicts of interest
There are no conflicts of interest.

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APPENDIX

Appendix 1: (Text 1) The Arabic version of the questionnaire

1. ؟نخدت تأدب امدنع كرمع ناك مك
2. ؟مويلاب نخدت هراجيس مك يموي لدعمك
3. ؟نخدتلا نع تفقوت ىتم ذنم
4. ؟يبطلا صيخشتلا حيضوت ءاجرلا ،معن تبجا اذإ (معن )
5. ؟ناطرسلا ضرم نم يناعت له
6. ؟ناطرسلا ضرم نم يناعت له ( ) . هوه ام مجن
7. ؟نخدم تنا له ( . لودجلا ىلا لاقتنالا ءاجرلا ،معن تبجا اذإ ( . لا ) )
The English version of the questionnaire.

1. Age: ……………
2. Gender: □ Male □ Female
3. Level of education: □ Elementary □ Middle school □ High school □ Diploma □ Bachelor □ Masters □ Doctorate □ Other, please specify: ……………
4. What is the reason for your visit today? ………………………………………………………………………………………………………………………………………………………………………
5. Have you been diagnosed with any type of cancer? □ No □ Yes
6. To the best of your knowledge, does smoking increase the risk of getting each of the following diseases? (Please respond to each disease)

|   | Lung cancer | COPD | Kidney cancer | Bladder cancer | Mouth cancer | Heart disease | Stroke | Erectile dysfunction |
|---|-------------|------|---------------|----------------|--------------|--------------|--------|---------------------|
| 1 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 2 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 3 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 4 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 5 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 6 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 7 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |
| 8 | □ Yes | □ No | □ Don't know | □ Yes | □ No | □ Don't know | □ Yes | □ No |

Please turn to the next page

7. Do you smoke cigarettes? *Do you… (Please answer Table A) *(Thank you, this is the end)

Table (A) If you are Current Smokers, please answer the following:

|   |   |
|---|---|
| 8 | How old were you when you started smoking? …………… years |
| 9 | On an average day, how many cigarettes do you smoke? ………… cigarette(s) |
| 10 | About how long have you used tobacco? …………… year(s) …………… month(s) |
| 11 | Did your urologist advise you to stop smoking? □ No □ Yes |
| 12 | Did any other doctor advise you to stop smoking? □ No □ Yes |

Table (B) If you are Ex-smokers, please answer the following:

|   |   |
|---|---|
| 13 | How old were you when you started smoking? ………… years |
| 14 | How long since you quit smoking? year(s) …………… month(s) |
| 15 | About how long did you smoke? …………… year(s) …………… month(s) |
| 16 | Was your decision to quit smoking related to a health condition or diagnosis? □ as □ as your decision to quit smoking: …………… |

Thank You