

## **Awareness of Lung Cancer Risk Factors in Palestine: Current Situation and Future Directions: Across Sectional Study**

Mohamedraed Elshami, MD, MMSc<sup>1,2\*</sup>, Ahmad Mansour<sup>30597565063\*</sup>, Mohammed Alser, MD<sup>2,4</sup>, Ibrahim Al-Slaibi, MD<sup>5</sup>, Hanan Abu Kmail<sup>4</sup>, Hanan Shurrah<sup>6</sup>, Shahd Qassem<sup>3</sup>, Faten Usrof<sup>7</sup>, Malik Alruzaygat<sup>3</sup>, Wafa Aqel<sup>3</sup>, Roba Nairoukh<sup>8</sup>, Rahaf Kittaneh<sup>9</sup>, Nawras Sawafta<sup>3</sup>, Yousef Habes<sup>3</sup>, Obaida Ghanim<sup>3</sup>, Wesam Almajd Aabed<sup>11</sup>, Ola Omar<sup>12</sup>, Motaz Daraghme<sup>12</sup>, Jomana Aljbour<sup>4</sup>, Razan Elan<sup>4</sup>, Areen Zhor<sup>12</sup>, Haneen Habes<sup>3</sup>, Mohammed Al-Dadah<sup>4</sup>, Nasser Abu-El-Noor, PhD<sup>13#</sup>, Bettina Bottcher, MD, PhD<sup>4#</sup>

\*Contributed equally as a first co-author.

#Contributed equally as a senior co-author.

<sup>1</sup>Division of Surgical Oncology, Department of Surgery, University Hospitals Cleveland Medical Center, Cleveland, OH, USA.

<sup>2</sup>Ministry of Health, Gaza, Palestine.

<sup>3</sup>Faculty of Medicine, Al-Quds University, Jerusalem, Palestine.

<sup>4</sup>Faculty of Medicine, Islamic University of Gaza, Gaza, Palestine.

<sup>5</sup>Almakassed Hospital, Jerusalem, Palestine.

<sup>6</sup>Faculty of Pharmacy, Al-Azhar University of Gaza, Gaza, Palestine.

<sup>7</sup>Faculty of Health Sciences Master of Medical Laboratory Sciences, Islamic university of Gaza, Gaza, Palestine.

<sup>8</sup>Faculty of Dentistry and Dental Surgery, Al-Quds University, Jerusalem, Palestine

<sup>9</sup>Faculty of Nursing, An Najah National University, Nablus, Palestine

<sup>10</sup>Hebron Governmental hospital, Hebron, Palestine

<sup>11</sup>Faculty of dentistry, Al Azhar University of Gaza, Palestine.

<sup>12</sup>Faculty of Medicine, Al Najah National University, Nablus, Palestine

<sup>13</sup>Faculty of Nursing, Islamic University of Gaza, Gaza, Palestine.

### **Corresponding author**

Mohamedraed Elshami, MD, MMSc  
Division of Surgical Oncology  
Department of Surgery  
University Hospitals Cleveland Medical Center  
11100 Euclid Avenue, Lakeside 7100  
Cleveland, OH 44106

Phone: 832-245-6055

Email: [mohamedraed.elshami@gmail.com](mailto:mohamedraed.elshami@gmail.com)

## **Abstract**

### **Background**

Poor awareness of lung cancer (LC) risk factors may contribute to late presentation, which leads to poor survival outcomes. This study aimed to evaluate the awareness of LC risk factors among Palestinians and identify the factors associated with good awareness.

### **Methods**

This was a national cross-sectional study conducted in Palestine from July 2019 to March 2020. Participants were recruited using convenience sampling from hospitals, primary healthcare centers, and public spaces located in 11 governorates. A translated-into-Arabic version of the validated LC awareness measure was used to assess recognition of 10 LC risk factors. One point was given for each correctly recognized risk factor. The awareness level was determined by the number of LC risk factors recognized: poor (0 to 3), fair (4 to 7), and good awareness (8 to 10).

### **Findings**

Of 5174 approached, 4817 participants completed the questionnaire (response rate= 93.1%). A total of 4762 questionnaires were included in the analysis, 2742 from the West Bank and Jerusalem (WBJ) and 2020 from the Gaza Strip. Participants from the WBJ were more likely to

be older, have higher monthly income but lower education, and suffer from more chronic diseases.

Smoking-related risk factors were more often recognized than other LC risk factors. The most recognized risk factors were 'smoking cigarettes' (n=4466, 93.8%) and 'smoking shisha [waterpipes]' (n=4337, 91.1%). The least recognized risk factors were 'having a close relative with LC' (n=2084, 43.8%) and 'having had treatment for any cancer in the past' (n=2368, 49.7%). A total of 2381 participants (50.0%) displayed good awareness of LC risk factors. Participants from the WBJ and the Gaza Strip had a similar likelihood to display good awareness (50.6% vs. 49.1%). Being  $\geq 45$  years old, having higher education and monthly income, knowing someone with cancer, and visiting hospitals and primary healthcare centers were all associated with an increase in the likelihood of displaying good awareness.

## **Conclusion**

Half of study participants displayed good awareness of LC risk factors. Effective implementation of tobacco control policies is essential beside educational initiatives to increase public awareness of the risk of smoking and other LC risk factors