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## Knowledge, Awareness and Practice of Family Medicine Residents towards Lung Cancer Screening and Prevention

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### Abstract

Globally, lung cancer is the number one kind of cancer in terms of mortality, which annually claiming 1.8 million lives. This makes it crucial to cope with this disease much more actively and meticulously. In Saudi Arabia, lung cancer is on the rise, and is causing loss of lives of all age groups and genders, its ranked 4<sup>th</sup> among Saudi males and 17<sup>th</sup> among Saudi females in a 2014 survey. The primary prevention of lung cancer includes screening patients for and smoking cessation intervention, whereas secondary prevention includes different screening methods screening used to detect lung cancer in patients. The primary and secondary prevention of lung cancer are very effective strategies in coping this cancer and saving precious lives. Furthermore, knowledge and awareness among physicians are substantial factors for the timely and effective screening of lung cancer, and lack of awareness in this regard can have negative impacts on its prevention and treatment. Therefore, this study was conducted to assess knowledge, awareness and practice of family medicine residents in Makkah city towards lung cancer screening and prevention.

Self-administered online questionnaire was designed, tailored and tested by the researcher and validated by 3 consultants of family medicine specialty. Participation in this research was optional and voluntary. The questionnaire composed of two parts, personal and demographic variables and practice of self-screening regarding different tests. Due to COVID-19, the questionnaire was constructed as a Google form, and then it was distributed online among the trainees. In total 65 (41 male and 24 female) family medicine residents responded successfully, personal computer and SPSS were used for data entry and analysis. From these 65 trainees, 31 respondents (47.69%) strongly agreed and 25 of them (38.46%) agreed that LCS is beneficial for patients. However, many of them lacked in the practice of lung cancer screening through Low dose CT scan and chest X-ray. Moreover, 15 of them perceived financial cost; 36 perceived lack of counseling; 17 considered the lack of perceived benefit of screening; 26 considered fears of positive results; and 14 considered the perceived risk of screening as a major barrier of LCS among patients. This study concluded that most of the family medicine residents were aware about the importance of periodic medical examination.

However, many of them lack in practice of the lung cancer screening. Efforts should be made by different stakeholders to educate family medicine residents on regular basis. From public health perspective health awareness should be raised amongst those who do not have awareness about regular medical examination to prevent illnesses and to improve the knowledge of medical professionals.

**Keywords:** Knowledge, Awareness, Lung Cancer, Screening, Family Medicine Residents

## Introduction

Lung cancer is the leading cancer type in terms of mortality ratio, world data shows that there are 1.8 million reported victims of lung cancer annually. In the Kingdom of Saudi Arabia (KSA), there are increasing cases of lung cancer, affecting all age groups irrespective of gender. According to Jazieh *et al* (2018) there were around 452 reported lung cancer cases in KSA in 2014. The literature proved that smoking is the big risk factor in developing lung cancer, the smokers are ten times more prone to this risk than lifetime nonsmokers, and the risk increases as the smoking duration and number of t cigarettes increases (O’Keeffe *et al.*, 2018). Systematic screening of patients for their smoking habits followed by tobacco cessation interventions are among effective primary prevention strategies used globally. Literature shows that smoking cessation can decrease the risk of lung cancer development many folds (O’Keeffe *et al.*, 2018). Also, rate of cure for Stage I diagnosed lung cancer cases is significantly higher than Stage IV diagnosed cases (Jazieh *et al.*, 2018 ).

Moreover, secondary prevention of lung cancer, with the help of Low dose CT scan or chest X-ray, is another important aspect for coping with the disease; and is proven to save lives. However, education and training of healthcare professional regarding latest diagnostic developments has proved to be effective in deciding prevention programs. (Jazieh *et al.*, 2018). Education of patients and their families on the potential benefits and risks of screening programs is also essential (Latimer & Mott, 2015; Williams *et al.*, 2015). Furthermore, Knowledge and awareness are substantial factors for the timely and effective screening of lung cancer, and lack of awareness in this regard can have negative impacts on its prevention and treatment (Ibrahim *et al.*, 2020). Therefore, the aim of this study is to assess knowledge and awareness and practice of family medicine residents of joined program in Makkah city towards lung cancer screening and prevention 2020, and to determine the perceived barriers towards lung cancer screening among family medicine residents in Makkah.

## Methodology

Makkah, the holiest and birth place of Islam, is one of the cities of Saudi Arabia in western region. The Saudi Commission for Health Specialties supervises the training of physicians in various medical specialties, and the specialty of Family Medicine is one of the most important specialties under the supervision of the joint program of family medicine in Makkah 2019. The total number of trainees (family medicine residents) was 100.

Self-administered questionnaire was designed, tailored and tested by the researcher and validated by 3 consultants of family medicine specialty. Participation in this research was optional and voluntary, and in case of withdrawal or refusal there will be no harm. The research data tool was composed of two parts the first was personal and demographic variables while the second part was related to the practice of self-screening regarding different tests. Due to COVID-19, the questionnaire was constructed as a Google form, and then it was distributed online among the trainees. This online questionnaire method was adopted in order to bring ease in data collection during the pandemic situation, and to follow

the SOPs (Standard Operating Procedures) related to COVID outbreak. Those trainees, who did not respond, were coded as 'not responding'. Consequently, a total number of 65 people (males and females) responded to the questionnaires, from the response of which the relevant data was collected and organized. Moreover, personal computer and SPSS were used for data entry and analysis.

## Results and Discussion

### Results

#### Lung Cancer Screening and Prevention (LCSP) Knowledge

A total of 31 respondents (47.69%) strongly agreed and 25 of them (38.46%) agreed that LCS is beneficial for patients. Whereas, 5 respondents were neutral (7.69%), 4 disagreed (6.15%) and none of them strongly disagreed in this regard. Similarly, the answers (along with the percentage) of respondents related to other questions regarding their knowledge of Lung Cancer Screening and Prevention (LCSP) are shown in table 1.

**Table 1.**

#### Lung Cancer Screening and Prevention (LCSP) Knowledge

Variables questions	Possible answers	n	%
LCS is beneficial for patients	Strongly agree	31	47.69
	Agree	25	38.46
	Neutral	5	7.69
	Disagree	4	6.15
	Strongly disagree	0	0
Inconsistent recommendations about LCS make it difficult to decide whether or not to screen	Strongly agree	7	10.77
	Agree	27	41.54
	Neutral	17	26.15
	Disagree	13	20
	Strongly disagree	1	1.54
LCS is cost-effective	Strongly agree	8	12.31
	Agree	28	43.08
	Neutral	21	32.31
	Disagree	8	12.31
I rely on the recommendations of local specialists regarding LCS	Strongly disagree	0	0
	Strongly agree	5	7.69
	Agree	26	40
	Neutral	22	33.85
	Disagree	12	18.46
I have enough knowledge to explain the pros and cons of LCS	Strongly disagree	0	0
	Strongly agree	10	15.38
	Agree	18	27.69
	Neutral	20	30.77
	Disagree	17	26.15
Time restrictions of patients in LCS	Strongly disagree	0	0
	Strongly agree	9	13.85

Agree	25	38.46
Neutral	20	30.77
Disagree	11	16.92
Strongly disagree	0	0

### Lung Cancer Screening and Prevention (LCSP) Practice

In order to inquire information related to the practice of Lung Cancer Screening and Prevention (LCSP) among respondents, questions were asked about different scenarios of LCS practice. Their response was coded in five different categories like i) Low dose CT scan, ii) Chest X ray, iii) No screening, iv) Need additional information. Table 2 depicts the number and percentage of the respondents who have given answers by selecting any of these different categories.

**Table 2**

### Lung Cancer Screening and Prevention (LCSP) Practice

LCS practice in different scenarios	Possible answers	n	%
A smoker with a 30 pack-year history	Low dose CT scan	40	61.54
	Chest X ray	3	4.61
	No screening	10	15.38
	Need additional information	12	18.46
A 55-year-old former smoker with a 15 pack-year history who quit smoking 20 years ago.	Low dose CT scan	9	13.85
	Chest X ray	7	10.77
	No screening	45	69.23
	Need additional information	4	6.15
A healthy 62-year-old former smoker with a 40 pack-year history who quit smoking 16 years ago and was exposed to asbestos in the workplace.	Low dose CT scan	28	43.07
	Chest X ray	11	16.92
	No screening	20	30.77
	Need additional information	6	9.23

### Awareness of Lung Cancer Screening and Prevention (LCSP)

Table 3 represents the answers of the respondents that depicted the awareness among them regarding Lung Cancer Screening and Prevention (LCSP). 52 (80%) of them were certainly aware that US Preventive Services Task Force (PSTF) recommend screening for lung cancer; 36 (55.38%) of them were certain that American Academy of Family Physician recommend screening for

lung cancer; 37 (56.92 %) were certainly aware that American Cancer Society recommend screening for lung cancer; and only 29 (44.61%) of them were certain that American College of Chest Physician recommend screening for lung cancer.

**Table 3****Awareness of Lung Cancer Screening and Prevention (LCSP) among respondents**

Variables questions	Response	n	%
Does US Preventive Services Task Force (PSTF) recommend screening for lung cancer	Yes	52	80
	No	5	7.69
	Maybe	8	12.31
Does American Academy of Family Physician recommend screening for lung cancer?	Yes	36	55.38
	No	7	10.77
	Maybe	22	33.85
Does American Cancer Society recommend screening for lung cancer	Yes	37	56.92
	No	3	4.61
	Maybe	25	38.46
Does American College of Chest Physician recommend screening for lung cancer?	Yes	29	44.61
	No	9	13.85
	Maybe	27	41.54

**Discussion**

Cancer is one of the leading causes of death in the globe, which makes lack of awareness regarding this disease a medical havoc for human beings. This lack of awareness about cancer can adversely impact its prevention as well as its treatment (Ibrahim *et al.*, 2020). Moreover, the attitude of people is a very important factor while tackling with cancer on every stage (prevention, early detection, treatment and survivorship) (Ravichandran *et al.*, 2011). Among different kinds of cancer, lung cancer is one of the most lethal cancers, which causes mortality in men and women around the globe (Saab *et al.*, 2021). According to research conducted to evaluate knowledge, attitudes and beliefs regarding lung cancer screening; it was found that just a minority of people at high risk of lung cancer was aware of lung cancer screening, and the majority of respondents were willing to peruse screening if the healthcare physicians recommend them to do so (Monu *et al.*, 2020).

The results of a study conducted in Saudi Arabia for assessing the level of knowledge and awareness regarding cancer among the people, revealed that most of the evaluated population had low level of knowledge (lack of awareness). The acceptable knowledge level



considered for the study was 60%; however, only 54.7% of the participants reached this level, and most of them were not even properly aware about the National Cancer Screening Programs (Ibrahim *et al.*, 2020). However, according to another study conducted in Riyadh (Saudi Arabia), which aimed to assess the attitudes, knowledge, practices and perceived barriers of Low-Dose Computed Tomography (LDCT) among the family medicine residents, the respondents had sufficient knowledge regarding the LDCT training (Arabiah *et al.*, 2021). Along with this, another research carried out in Saudi Arabia revealed that most of the respondents (92.6%) had the view that there is need for physician recommendation to ensure participation of people in cancer screening programs. Plus, 78.1% of respondents had the view that such screening programs should be conducted in the existing clinics and hospitals (Ravichandran *et al.*, 2011).

Specifically, the incidence of lung cancer has increased a lot in the Saudi population (that is more than 3% in about two decades), and 4530 cases of lung cancer were reported in the country from 2006 to 2016. Therefore, it is necessary to bring positive changes in the attitude and participation of Saudi residents and medical experts in the lung cancer screening activities (Almatroudi, 2021). Furthermore, it has been found that tobacco control can be a very important aspect in the prevention of lung cancer in Saudi Arabia. For this, it is recommended that healthcare professionals should screen their patients to check their smoking habits, and they should refer smoking cessation programs for those patients who are habitual of smoking. Along with this, mass screening of those people who are at high risk of lung cancer also plays an important role in coping with the issue of lung cancer (Jazieh *et al.*, 2018).

### **Conclusion and Recommendations**

In this current onset of COVID-19 pandemic situation, it is believed that the world is at risk of an unexpected increase in the incidence of different diseases, which emphasizes the importance of health protection and promotion of the health care providers. Lung cancer, which kills millions of people annually in the globe, needs to be tackled properly. Detection of lung cancer at earlier stage improves the overall survival of patients. Moreover, awareness, knowledge and attitude are the very crucial factors that affect the effective screening, detection and treatment of many diseases including lung cancer. With the help of questionnaires given to 100 family medicine residents (among which 65 responded), this study was carried out to evaluate the knowledge and awareness and practice of family medicine residents of joined program in Makkah city towards lung cancer screening and prevention. The results of this study concluded that most of the family medicine residents were aware about the importance of periodic medical examination. However, many of them lack in practice of the lung cancer screening of their patients. Based upon study following recommendations are made.

- Efforts should be made by the hospitals administration, concerned ministry and other health agencies including students and youth representative societies to educate them on regular basis.
- From public health perspective health awareness should be raised amongst those who do not have awareness about regular medical examination to prevent illnesses and to improve the knowledge of medical professionals.
- Intensive public health education should be provided regarding lung cancer screening, prevention and practice and also a national health policy to guide on this important activity to promote health and prevent diseases.
- Medical students should receive the aforementioned information before the

graduation.

- The actions like capacity building and focusing on continuing education of health-care staff with improved access to latest information in medical journals and the internet is need of the hour.

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