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## IMPLEMENTATION AND RESULTS OF SURVEY HELD IN THE ANALYSIS OF EXAMINATION METHODS IN PULMONARY DISEASES

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### ABSTRACT

Globally, lung diseases are common. Among most common diseases are pneumonia, lungs' cancer, COPD (Chronic Obstructive Pulmonary Disease), tuberculosis, asthma, bronchitis, etc., Due to ecology condition, no one is immune from pulmonary diseases. According to statistics, more than half of chronic diseases occur in the lungs and bronchi. So, in this work the different methods to examine lungs are analysed. Some methods of examination of pulmonary diseases like radiology, radiography, fluorography, thoracoscopy, etc.,

### KEYWORDS

Lung diseases, Radiology, Radiography, Fluorography, bronchography, Thoracoscopy.

## INTRODUCTION

Radiography is an imaging technique using X-rays, gamma rays, or similar ionizing radiation and non-ionizing radiation to view the internal form of an object. Applications of radiography include medical radiography ("diagnostic" and "therapeutic") and industrial radiography. Similar techniques are used in airport security (where "body scanners" generally use backscatter X-ray). To create an image in conventional radiography, a beam of X-rays is produced by an X-ray generator and is projected toward the object. A certain amount of the X-rays or other radiation is absorbed by the object, dependent on the object's density and structural composition. The X-rays that pass through the object are captured behind the object by a detector (either photographic film or a digital detector). The generation of flat 2-D images by this technique is called projectional radiography. In computed tomography (CT scanning) an X-ray source and its associated detectors rotate around the subject which itself moves through the conical X-ray beam produced. Any given point within the subject is crossed from many directions by many different beams at different times. Information regarding attenuation of these beams is collated and subjected to computation to generate two dimensional images in three planes (axial, coronal, and sagittal) which can be further processed to produce a 3-D image.

Fluoroscopy is a term invented by Thomas Edison during his early X-ray studies. The name refers to the fluorescence he saw while looking at a glowing plate bombarded with X-rays [1]. The technique provides moving projection radiographs. Fluoroscopy is mainly performed to view movement (of tissue or a contrast agent), or to guide a medical intervention, such as angioplasty, pacemaker insertion, or joint repair/replacement. The last can often be carried out in the operating theatre, using a portable fluoroscopy machine called a C-arm [2]. It can move around the surgery table and make digital images for the surgeon. Biplanar Fluoroscopy works the same as single plane fluoroscopy except displaying two planes at the same time. The ability to work in two planes is important for orthopaedic and spinal surgery and can reduce operating times by eliminating re-positioning [3].

High-speed X-ray imaging in two dimensions (radioscopy) and three dimensions (tomography) is combined with fast X-ray diffraction in a new experimental setup at the synchrotron radiation source BESSY II. It allows for in situ studies of time-dependent phenomena in complex systems. As a first application, the foaming process of an aluminium alloy was studied in three different experiments. Radioscopy, optical expansion measurements and diffraction were used to correlate the change of foam morphology to the various phases formed during

heating of an AlMg<sub>15</sub>Cu<sub>10</sub> alloy to 620°C in the first experiment. Radioscopy was then replaced by tomography. Acquiring tomograms and diffraction data at 2 Hz allows even more details of foam evolution to be captured, for example, bubble size distribution. In a third experiment, 4 Hz tomography yields dynamic insights into fast phenomena in evolving metal foam [4].

Community-acquired pneumonia refers to an acute infection of the lung in patients who did not meet any of the criteria for health care-acquired pneumonia, and is associated with at least some symptoms of acute infection, accompanied by the presence of an acute infiltrate on a chest radiograph. Chest radiography remains an important component of the evaluation of a patient with a suspicion of pneumonia, and is usually the first examination to be obtained. The diagnosis of community-acquired pneumonia is based on the presence of select clinical features and is supported by imaging of the lung, usually by chest radiography. Infection of the lower respiratory tract typically presents radiologically as one of 3 patterns: (a) focal nonsegmental or lobar pneumonia, (b) multifocal bronchopneumonia or lobular pneumonia, and (c) focal or diffuse "interstitial" pneumonia. High-resolution computed tomography allows a better depiction of the pattern and distribution of pneumonia than the radiograph but is seldom required in the evaluation of patients with suspected or proven bacterial pneumonia. However, high-resolution

computed tomography is a useful adjunct to conventional radiography in selected cases [5].

In Belarus, fluorography testing is mandatory every one to three years for all adults depending on age and the so-called "risk groups". The World Bank and WHO estimate that Belarus spends USD11 million annually on mass fluorography screening and advocate for more targeted screening approaches to increase diagnostic yield for TB and not to use it for screening for LC. The study is a retrospective review of medical records to assess the yield of fluorography to detect true cases of LC and/or TB in asymptomatic patients in two rural and two urban districts in Belarus for 2015-2017 with positive screening results for presumed of TB or LC. The study provided the rationale to implement the improved policy and practices regarding the role of fluorography in the early detection of LC and TB in Belarus and elsewhere [6,12].

Bronchograms were made in eight men, chosen on clinical grounds as representative of three grades of severity in a series of 67 male bronchitis studied prospectively over a period of 10 years, with the object of ascertaining the anatomical condition at the end of this period. In the stationary group the bronchograms showed only a mild mucous reaction, and peripheral filling was generally good. In the slowly progressive group, mucous obstruction was evident and fairly widespread, and organic changes were present, though not widespread or severe. In the progressive group, both mucous obstruction and organic change

were widespread. It was noted that when both mucous obstruction and organic changes were observed the upper lobes were seen to be relatively normal with the exception of the progressive cases in which all changes were more severe. The bronchographic abnormalities were found to be closely correlated with the grades of clinical severity [7,13].

Novel approaches and innovations in small animal thoracoscopy are being rapidly developed; this article aims to describe recent updates in commonly performed thoracoscopic procedures, including lung lobectomy, pericardiectomy and pericardial and cardiac neoplasia evaluation, chylothorax treatment, cranial mediastinal mass resection, persistent right aortic arch treatment, and management of pyothorax and primary spontaneous pneumothorax [8,10].

Medical thoracoscopy is an excellent tool to establish diagnosis in patients with exudative pleural effusion of unclear origin. It is highly valuable in clarifying the origin of pleural effusions in patients with lung cancer, as the presence of a malignant pleural effusion is associated with poor survival and precludes the possibility of treatment with curative intention. Pleurodesis with talc poundage is efficacious and well tolerated, especially with the use of large-particle talc [9,11].

## **MATERIALS AND METHODS**

This study used an online Google Form questionnaire as the instrument. Invitation to participate in this survey was sent through the email and social media such as Instagram. The questionnaire was distributed in this way because each of the participants has his or her personal email account and most of them have their own Instagram account as well. Therefore, using online Google Form to reach each participant is the best choice.

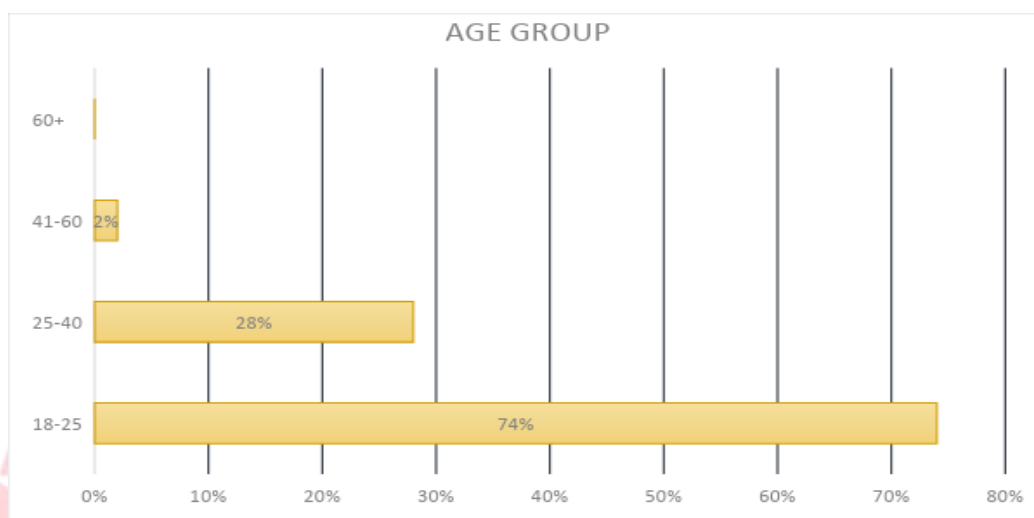
The target respondents are the young people of Tashkent, Uzbekistan and India under the age of 25 because the young people ratio is more in this area. The questions in the developed questionnaire were distributed for this pilot to test the awareness of public on analysis of examination methods in pulmonary diseases. The population of this survey was 100 members. Among 100 responses, 4 sets of responses were incomplete. This work is done to create an awareness on the myths among the youngsters about the examination methods that it causes heavy radiation. The search for literary sources was carried out using the bibliographic databases Web of Science, Scopus, DBLP, PubMed. When selecting sources, they paid attention to experimental articles, literary reviews, the number of their citations over the past year.

## **RESULTS**

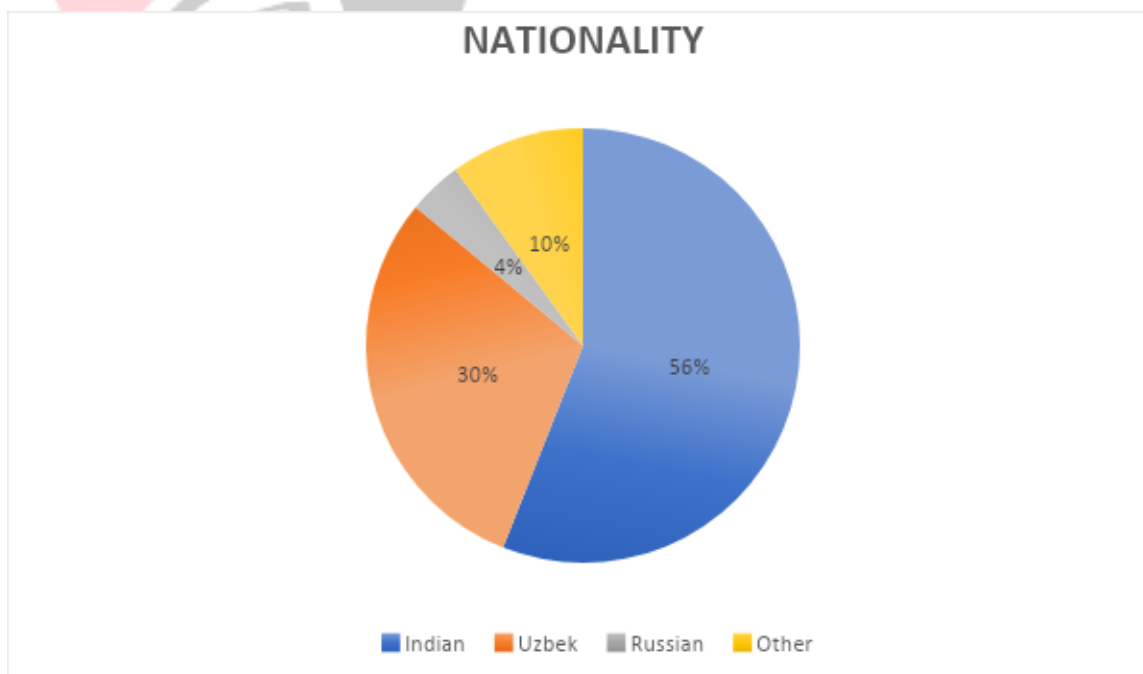
The survey was conducted using information and communication technologies, booklets, brochures, presentations, etc. All were asked to answer using a

specially designed analysis of examination methods in pulmonary diseases questionnaire. The table below show the results of the survey. People of about 100 were under survey. Among them, Male (28%), Female (70%) and prefer not to say (2%)

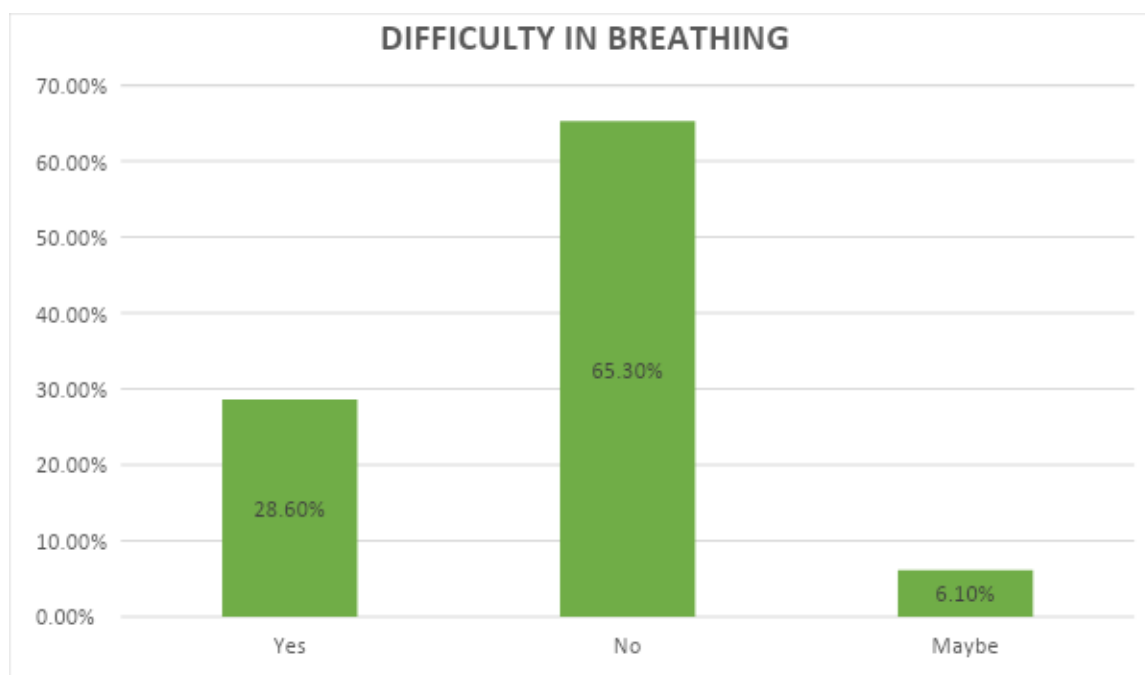
The age of the participants was from 18-25 years old (74%), from 26-40 years old (20%), from 41-60 years old (6%) and from 60 and above (0%)



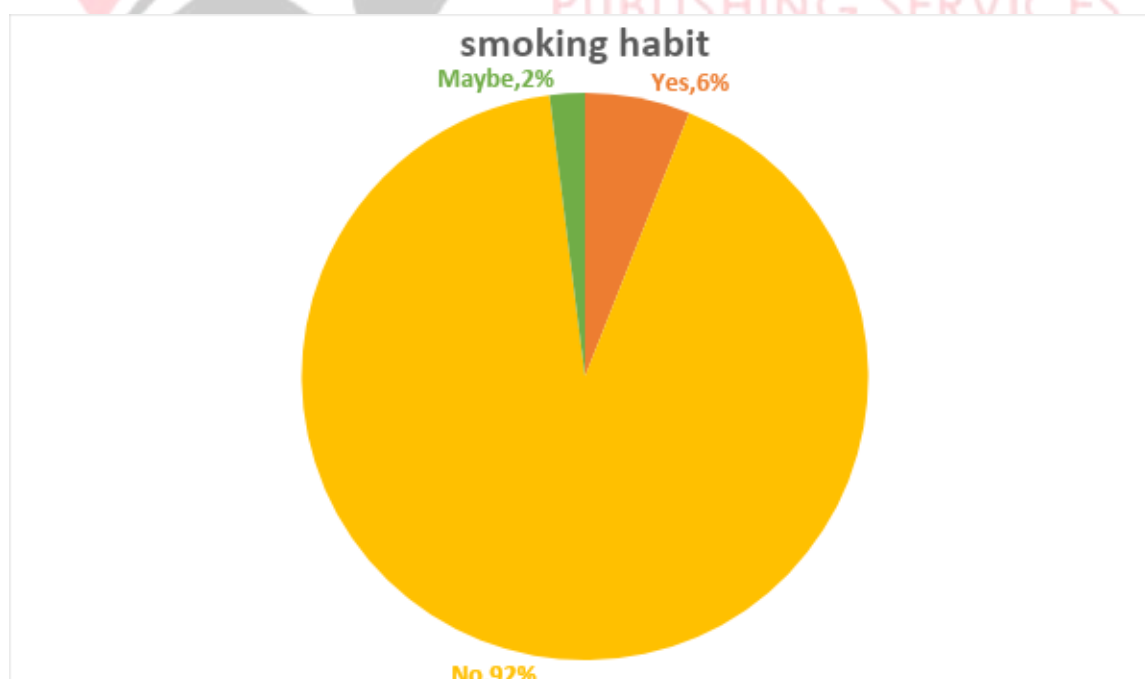
The participants of my survey are mostly Indian (56%), Uzbek (30%), Russian (4%) and Other (10%).



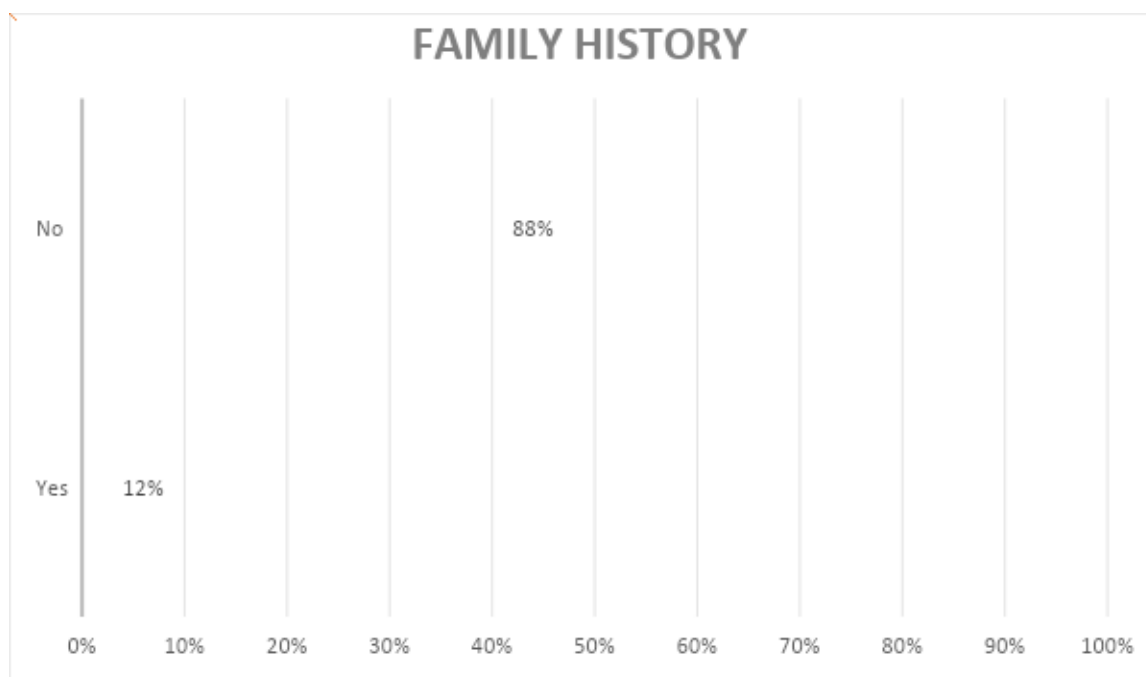
Some of the respondents said they have felt difficulty in breathing (28.6%) and most of them said there is no difficulty in their breathing (65.3%)



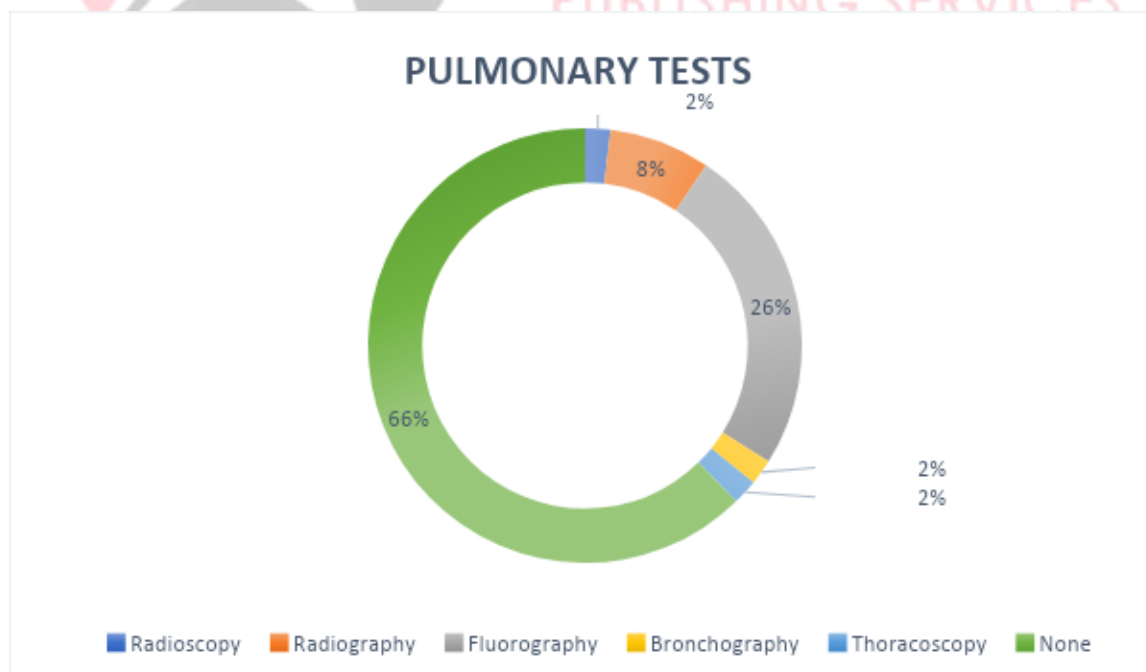
Most of the people in my survey do not smoke (92%) and some them have the habit of smoking (6%) because this is one of the greatest reasons for most of the pulmonary diseases.



The family history of pulmonary diseases of most of the participants said that there are no such diseases (88%) and most of the people have no allergy in the breathing (84%) so the results of my survey concluded as such.



Most of the tests mentioned in my survey are not tested by my participants due to the myths of causing radiations they do not prefer tests even they have any symptoms.



## DISCUSSION

Although the response rate is good but there have several argued points in this survey. The respondents answer in the survey might be not the answers that expected. One of the reasons is because some of the respondents were afraid of taking certain tests which uses radiations for diagnosing. They might have difficulties in grasping the idea of survey on analysis of examination methods in pulmonary diseases. On the other hand, those who understood the questionnaire and had experienced any of the tests might have faced the Internet access problem and this caused the method of distribution might not reached to the target respondents. Some of the participants who could access the questionnaire might waive to answer this survey. Furthermore, these reasons might cause the results of this survey not reliable and accurate.

## CONCLUSION

As a criterion of this survey, this paper presented as to understand the knowledge of the people on examination methods in pulmonary diseases. The results of the survey conducted made me realize the participants under the age of 25 were mostly involved in my survey and even then, they too believe the myths prevailing around the public. The young people should understand the hazard nature of all the pulmonary disease. I evident it by the results of the survey that the younger people are also believing the myths for the examination methods.

Thus, the people must be tested if they have any kind of symptoms regarding pulmonary tract. The need for awareness-raising activities among the population, especially among young people is inevitable. With regard to solving this problem, a preventive approach can be effective.

## ACKNOWLEDGEMENT

Thus, the people should take the necessary steps to prevent them from life-threatening problems as follows:

- ✓ To know the symptoms of the pulmonary diseases
- ✓ To consult the doctor
- ✓ To forbid the myths for the radiation prevailing in the examination methods
- ✓ To prevent the usage of medications without the prescription of the physician

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