

# Lung Cancer Awareness in Rural India - A Population Based Survey

Pranamita Ray<sup>1</sup>, Ambarish Datta<sup>2</sup>, Suranjan Mukherjee<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Pathology, VIMS, Kolkata, West Bengal, India.

<sup>2</sup>Asian Institute of Public Health, Samantapur, Bhubaneswar, India.

<sup>3</sup>Senior Consultant, Department of Respiratory Medicine, AMRI Hospital, Kolkata, West Bengal, India

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## ABSTRACT

**Background:** The aim is to demonstrate the level of lung cancer awareness within a rural Indian population and to demonstrate any variability in the level of awareness that might exist within the population depending on the socio-economic status. **Methods:** A survey done in West Bengal, Eastern India from December 2013 to February 2014 in a tertiary care hospital amongst inpatients and or relatives and family members of patients attending the outpatient department and agreeing to participate in the survey. **Results:** This survey shows the level of awareness about lung cancer (LC) amongst rural and urban Indian population attending a tertiary hospital. **Conclusion:** LC awareness remains substantially poor amongst the population surveyed. There is an urgent need to promote awareness and education to facilitate early detection of LC.

**Keywords:** Lung cancer, awareness, rural, population.

## INTRODUCTION

Previous studies have shown a lack of awareness about the various risk factors, screening and preventive strategies for common cancers.<sup>[1]</sup> This might be one of the many factors leading to significant delay in presentation for patients with lung cancer (LC) leading to missed opportunity for surgical resection and hence the best chance of cure.<sup>[2]</sup> The overall 5-year survival for LC in US is approximately 17% and has not changed significantly in 25 years despite advances in diagnosis, imaging, staging, and treatment.<sup>[3,4]</sup>

## MATERIALS AND METHODS

Family members of patients attending the outpatient department were asked to complete a 23- item questionnaire regarding various risk factors, preventive aspects, early symptoms, investigations and treatment of LC. The awareness was measured using the questionnaire where the appropriate answer to each item scored 1. The awareness score was modelled as the dependent variable in the ensuing analysis; with education (illiterate / never gone to formal school; primary education; secondary education but not passed secondary/ O level; passed secondary/ O level; completed A level; graduate; Post graduate /professional degree), income (four quartiles) and familiarity with cancer (near/distant

relative, friends, neighbours had cancer) as predictors introduced in the linear regression models as either ordinal or binary categorical variables. Demographic data along with education, occupation, monthly income and familiarity with cancer were recorded.

Total 202 participants filled up a 23 – item questionnaire which included general facts and myths, risk factors, early symptoms and signs, investigation and treatment options of lung cancer.

Questionnaire consisted of a statement and three choices of answers (yes/no/don't know).

Awareness was measured using the questionnaire where the appropriate answer to each item scored 1. The awareness code was modelled as the dependent variable in the ensuing analysis; education (divided in two groups: graduate/Post graduate and others), monthly income (divided in four almost equal quartiles; based on 25th percentile) and familiarity with cancer (divided in three groups; near /distant relative, others; none)

As predictors introduced in the linear regression models as either ordinal or binary categorical variables.

## RESULTS

When the responses were analysed according to the different study respondents based on above predictors, there was statistically significant better awareness in the higher income groups (group 3: p = 0.003; CL 0 .84–3.89; group 4: p = 0.001; CL 1 .05–12.8), higher education group (p=0.002; CI 0.62-2.69) and familiarity with LC (near but not distant relatives/friends having cancer; p =0.002; CL 0 .75–3.26).

### Name & Address of Corresponding Author

Dr. Pranamita Ray,  
Assistant Professor,  
Department of Pathology,  
VIMS, Kolkata,  
West Bengal, India.

**Table 1: Analysis of responses received from the questionnaire**

Does smoking in any form causes cancer?	185 (92%)	17 (8%)	0 (0%)
Some cancers are genetically related	99 (49%)	98 (49%)	5 (2%)
Cancer is a contagious disease	147 (73%)	51 (25%)	4 (2%)
Any type of cancer is a disease of old age	187 (93%)	13 (6%)	2 (1%)
Bidi is less harmful than cigarettes causing lung cancer	121 (60%)	80 (40%)	1 (0.5%)
Smoking in any form causes lung cancer	175 (87%)	26 (13%)	1 (0.5%)
Tobacco chewing (khaini, jarda, gutka, dokta) causes lung cancer	42 (21%)	157 (78%)	3 (1%)
Lung cancers are genetically related	28 (14%)	171 (85%)	3 (1%)
All cancers are symptomatic from early stage	39 (19%)	161 (80%)	2 (1%)
Lung cancer is usually painful	26 (13%)	174 (86%)	2 (1%)
Lung cancer can be treated by surgery/chemotherapy/radiotherapy/combination of above	35 (17%)	119 (59%)	48 (24%)
Lung cancer can be curable	66 (33%)	133 (66%)	3 (1%)
Screening program helps in early detection of some cancer	97 (48%)	95 (47%)	10 (5%)
Cancer can be spread by biopsy	107 (53%)	90 (45%)	5 (2%)
The word "biopsy" is related to investigation	158 (78%)	41 (20%)	3 (1%)
Measures can be taken to reduce the chance of developing cancer	180 (89%)	17 (8%)	5 (2%)
Prolonged exposure to some chemicals may cause cancer	149 (74%)	48 (24%)	5 (2%)
Weight loss of over a few months is a sign of cancer	113 (56%)	83 (41%)	6 (3%)
If patient is aware of his diagnosis deterioration is more rapid	62 (31%)	135 (67%)	5 (2%)
New onset of persistent cough after 40 years of age needs urgent attention to rule out cancer	151 (75%)	46 (23%)	5 (2%)
Blood with sputum after 40 years of age needs urgent attention to rule out cancer	159 (79%)	34 (17%)	9 (4%)
Loss of appetite of long duration needs urgent attention to rule out cancer	134 (66%)	58 (29%)	10 (5%)
Persistent hoarseness of voice or change in voice needs urgent attention to rule out cancer	146 (72%)	47 (24%)	9 (4%)

**Table 2: statistical analysis of data based on education, income and familiarity with cancer**

	Difference in mean awareness core (95% Confidence Interval)	P-value
Education		
Between lowest and middle category of education	1.65 (0.02 - 3.26)	0.046
Between lowest and highest category of education	2.84 (1.29 - 4.38)	<0.001
Income		
Between 1st and 2nd quartile	-0.46 (-1.6-1.51)	0.95
Between 1st and 3rd quartile	2.36 (0.84 - 3.89)	0.003
Between 1st and 4th quartile	2.64 (1.05 - 4.24)	0.001
Familiarity with cancer		
None vs Relatives (29% have relatives who have suffered from cancer)	2.01 (0.75 - 3.27)	0.002
None vs Others (29% have others such as friends who have suffered from cancer)	0.85 (-0.43 - 2.14)	0.192

Does smoking in any form causes cancer, about 92% response was yes, 8% answered no. In response to the genetic relation to cancer 49% answered yes, 49% chose no and only 2% chose don't know. 73% answered yes to the question cancer is a contagious disease, 25% chose no and 2% responded as don't know. 93% thought any type of cancer is an old age disease whereas 6% thought it was not and remaining 1% chose don't know. 60% of the population thought bidi is less harmful than cigarette in relation to lung cancer and 40% thought it was not whereas only 0.5% didn't know. 87% population was aware about smoking as any form as a cause of lung cancer and 13% thought it was false only 0.5% was not sure. About 21% thought tobacco chewing cause lung cancer and 78% thought it was false and only 1% did not know. 14% population thought lung cancer is genetically related, 85% thought it was not and 1% didn't know the answer. 19% population thought all cancers are symptomatic from early stage and 80% thought it was not, only 1% didn't know the answer. 13% population thought lung cancer is usually painful and 86% thought it was false and 1% didn't know the answer. 17% thought lung cancer can be treated by surgery/chemotherapy/radiation or with combination of therapy and 59% thought it was

incorrect and 24% didn't know the answer. 30% of the population thought LC can be curable and 66% thought it was not and 1% didn't know the answer. 48% thought screening program helps in early detection of some cancer whereas 47% thought it was false and 5% didn't know the answer. 78% did not know the word biopsy is related to investigation, 20% thought it was not and 1% didn't know the answer. 53% thought cancer can spread by biopsy, 45% thought it is false and 2% didn't know the answer. 89% knew that measures can be taken to reduce the chance of developing cancer, 8% thought the opposite and 2% didn't know. 74% was aware that long exposure to some chemicals may cause cancer whereas 24% thought that was not true and 2% didn't know the answer. 56% thought weight loss over a few months is a sign of cancer and 41% thought it was not and 3% didn't know the answer. 31% thought if patient is aware of the diagnosis then deterioration is more rapid whereas 67% thought the opposite and 2% didn't know. 75% of population surveyed thought new onset of persistent cough after 40 years of age needs urgent attention to rule out cancer, 23% thought it was not true and 2% didn't know the answer. 79% population thought blood with sputum after 40 years of age needs urgent

attention to rule out cancer, 17% thought it was false and 4% did not know. 66% thought loss of appetite of long duration needs urgent attention, 29% thought it was not true and 5% didn't know the answer. 72% thought persistent hoarseness of voice or changing voice needs urgent attention whereas 24% thought the opposite and 4% did not know the answer.

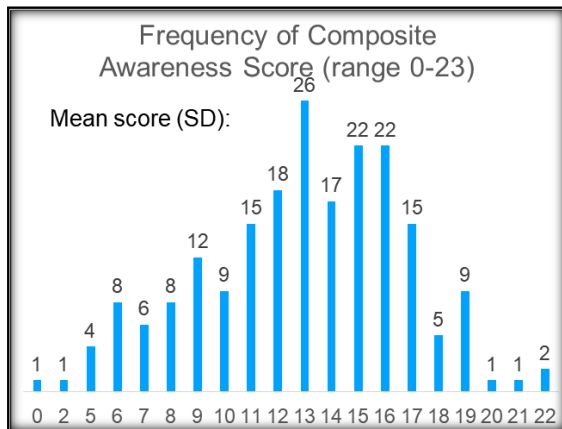


Figure 1: Frequency of composite awareness score

[Figure 1] shows the frequency of composite awareness score with range of 0 to 23 and means score is 12.94 with standard deviation 3.84.

[Table 2] shows the three parameters namely education, income and familiarity with cancer. The second column shows the difference in mean awareness score with 95% confidence interval in the first bracket. The third column shows the p value of these parameters.

Difference in mean awareness score between lowest and middle category of education is 1.65 with p value 0.046. 95% confidence interval 0.02–3.26. Difference in mean awareness score between lowest and highest category of education is 2.84 with 95% confidence interval 1.29–4.38 and p value less than 0.001.

Regarding income, difference in the mean awareness score between first and second quartile is -0.46 and 95% confidence interval is -1.6–1.51 with a p value of 0.95. Difference in mean awareness score between first and third quartile of income is 2.36 with 95% confidence interval being 0.84–3.89 with a p value 0.003. Difference in mean awareness score between 1st and fourth quartile income is 2.64 with 95% confidence interval 1.05–4.24 with a p value 0.001.

Regarding familiarity with cancer difference in mean awareness score between none versus relative (29% have relatives who have suffered from cancer) is 2.01 with 95% confidence interval being 0.75–3.27 and p value is 0.002. Difference in the mean awareness score among none versus others (29% have others such as friends who have suffered from cancer) is 0.85 with 95% confidence interval -0.43–2.14 with p value of 0.192.

## DISCUSSION

Lung cancer is one of the prime causes of cancer death. Majority of cases present reasonably late and when diagnosed already patients are in stage 3 or 4; therefore are inoperable and palliative treatments are the only option. So it is crucial that common people become aware about the early symptoms and possible treatment of a lethal cancer like lung cancer. Present survey highlights the underlying importance of education in the situation. This is a sample survey, population surveyed are representative of rural and urban population.

## CONCLUSION

Lung cancer awareness remains poor among the population surveyed. There is a significant variability related to socio-economic status. Our sample size is small still consistent with the results expected.

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