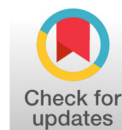




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## Breath of Knowledge: A Cross-Sectional Assessment of Lung Cancer Awareness in Johor Bahru District, Malaysia

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**Abstract | Background:** Lung cancer represents a major global health challenge, highlighting the need for a comprehensive understanding of awareness and knowledge levels to support effective prevention and early detection strategies. This study explores lung cancer awareness within the specific context of District Johor Bahru, Malaysia, where regional and socio-cultural variations may influence awareness patterns. **Materials and Methods:** This cross-sectional survey study included 400 adult participants residing in District Johor Bahru. Data were collected using a Google Form-based questionnaire comprising socio-demographic variables and 20 knowledge-related questions on lung cancer. Based on predefined scoring criteria, participants were categorized into very good, good, fair, and poor knowledge levels. Data collection was conducted from August to October 2023 using online platforms. **Results:** The analysis demonstrated a diverse distribution of participants, with 33% from urban areas and 67% from rural areas. Overall, 25.5% of participants exhibited very good knowledge, 36% demonstrated good knowledge, while 38.25% showed fair to poor knowledge levels. Notable knowledge gaps were observed, particularly regarding lung cancer screening methods, types, and stages. These findings are consistent with global trends and emphasize the necessity for context-specific awareness interventions. **Conclusion:** This study provides valuable insights into lung cancer awareness in District Johor Bahru, identifying both existing strengths and areas requiring improvement. The findings support the implementation of targeted health communication strategies and community-based educational programs to address identified knowledge gaps. Strengthening awareness initiatives may contribute to earlier detection, improved clinical outcomes, and a reduced burden of lung cancer within this unique socio-cultural setting.

**Keywords:** Lung Cancer, Awareness, Knowledge, District Johor Bahru, Malaysia, Community-Based Education

### INTRODUCTION

Lung cancer stands as a formidable global health challenge, with its impact felt across diverse communities and geographical regions. As the leading cause of cancer-related mortality worldwide, understanding the awareness and knowledge levels regarding lung cancer is crucial for effective prevention and early detection strategies. This study aims to explore the depths of public awareness and knowledge concerning lung cancer within the distinctive context of District Johor Bahru, Malaysia [1-2].

Lung cancer poses a significant public health burden, contributing to 2.2 million new cases and 1.8 million deaths globally each year. The World Health Organization (WHO) emphasizes the urgency of addressing the rising incidence of lung cancer and underscores the importance of tailored interventions at the regional and community levels. Understanding the specific challenges within District Johor Bahru is crucial for developing effective public health initiatives [2-4].

Early detection is paramount for improving lung cancer outcomes, yet a lack of awareness often leads

to delayed diagnosis and limited treatment options. Indian studies emphasize the need for community-based education to empower individuals to recognize early signs and seek timely medical attention [5-6]. By assessing baseline awareness levels in District *Johor Bahru*, we aim to identify opportunities for tailored public health interventions. Situated in the scenic landscapes of *Malaysia*, District *Johor Bahru* presents a unique demographic and socio-cultural milieu. The population's health beliefs, access to healthcare, and prevalent lifestyle factors may contribute to distinct patterns of awareness and knowledge regarding lung cancer. Indian studies have highlighted the impact of regional variations on cancer awareness, emphasizing the need for localized investigations to inform tailored health communication strategies [5-9].

While global efforts have expanded our understanding of lung cancer awareness, there is a notable gap in comprehensive studies focusing on specific Indian regions. This study seeks to bridge this gap by providing insights into the current awareness levels in District *Johor Bahru*. By identifying gaps in knowledge and misconceptions, we can pave the way for targeted educational interventions that resonate with the local population.

### Objective of the Study

The Primary objective of this study is to assess the awareness and knowledge levels concerning Lung cancer among the general population residing in District *Johor Bahru, Malaysia*.

### MATERIAL AND METHODS

- **Research Approach :** Descriptive
- **Research Design:** Cross-sectional survey design
- **Study Area:** District *Johor Bahru, Malaysia*
- **Study Duration:** Between August 2023 to October 2023
- **Study Population:** The study's target population encompassed all adults aged 18 and above who had been residents of District *Johor Bahru* for a minimum of 12 months
- **Sample Size:** A robust sample size of 400 adults was determined using a 95% confidence level, an estimated knowledge level of 50% regarding Lung Cancer, a precise 5% absolute error margin, and a conservative 5% non-response rate
- **Study Tool:** A google form questionnaire consisting of questions regarding socio-demography and knowledge regarding about Lung Cancer including its risk factors, early warning signs, available screening methods, and preventive measures etc. was created. The questionnaire was initially pre-tested on a small number of participants to identify any difficulty in understanding by the respondent

### Description of Tool

- **Demographic Data Survey Instrument:** The demographic form elicited information on participants' background: age, marital status, religion, employment, education and many more
- **Questionnaire:** The questionnaire contains 20 structured knowledge related questions regarding about Lung Cancer including its risk factors, early warning signs, available screening methods, and preventive measures etc. One mark was given for each correct answer and zero for incorrect answer. The maximum score was 20 and minimum score was zero. Scoring was done on the basis of marks as >80% (16-20) = very good, 60-79% (12-15) = Good, 41-59% (8-11) = Fair, <40% (< 8) = poor
- **Validity of Tool:** By the experts in this field
- **Data Collection:** Data was collected under the guidance of supervisors. The google form questionnaire was circulated among the residents of District *Johor Bahru, Malaysia* for responses using online modes like e-mail and social media platforms like Whatsapp groups, Facebook, Instagram and LinkedIn till the 400 responses were collected
- **Data Analysis:** Data was collected and entered in Microsoft excel spread sheet, cleaned for errors and analyzed with Epi Info V7 Software with appropriate statistical test in terms of frequencies and percentage
- **Ethical Considerations:** Participants confidentiality and anonymity was maintained

### RESULTS

The goal of the current study was to assess knowledge of general public of *Johor Bahru* regarding Lung Cancer through a non-experimental descriptive survey. A total of 400 respondents took part in the study, with 132 (33%) coming from urban areas and 268 (67%) from rural areas.

In the present study 25.5% (102) participants had very good knowledge (16-20 marks) towards Lung Cancer, 36% (144) had good knowledge (12-15 marks), 25.75% (103) had fair knowledge (8-11 marks) and 12.75% (51) having poor knowledge (<8 marks).

### DISCUSSION

The findings of this study shed light on the current state of awareness and knowledge regarding lung cancer among the residents of District *Johor Bahru, Malaysia*. The study employed a robust cross-sectional survey design, involving a diverse sample of 400 adults from both urban and rural areas. The results reveal noteworthy insights into the participants' understanding of lung cancer, encompassing its risk factors, symptoms, screening, and treatment aspects.

The assessment of knowledge levels indicates that a considerable proportion of the study participants possess a commendable understanding of lung cancer.

Table 1: Knowledge regarding Lung Cancer among study participants

No.	Statements	Frequency of Correct Responses	%
1	What is lung cancer, and can you briefly describe its nature and how it develops?	307	76.75
2	What are the primary risk factors associated with lung cancer, and can you name a few?	282	70.5
3	Can you list some common signs and symptoms of lung cancer that individuals should be aware of?	295	73.75
4	How can smoking, both active and passive, contribute to the development of lung cancer?	245	61.25
5	Are there other environmental or occupational factors that can increase the risk of lung cancer?	263	65.75
6	Can non-smokers develop lung cancer, and if so, what are some potential causes?	179	44.75
7	What role does early detection play in improving the prognosis of lung cancer patients?	275	68.75
8	What are the benefits of lung cancer screenings, and who should consider getting screened?	157	39.25
9	Are there different types of lung cancer, and if so, how do they differ in terms of treatment and prognosis?	99	24.75
10	Can you explain the various stages of lung cancer and how they impact treatment options?	88	22
11	What is the significance of raising awareness about lung cancer in our community?	149	37.25
12	Are there any myths or misconceptions about lung cancer that you're aware of?	105	26.25
13	How does lung cancer treatment typically progress, and what are some common treatment approaches?	193	48.25
14	Can you name any organizations or initiatives dedicated to lung cancer awareness and support?	137	34.25
15	What resources are available for individuals diagnosed with lung cancer and their families?	165	41.25
16	Have you or someone you know ever been personally affected by lung cancer? If so, what was the experience like?	80	20
17	Are you familiar with the importance of lung cancer awareness month and related awareness campaigns?	146	36.5
18	What role can lifestyle choices, such as diet and exercise, play in reducing the risk of lung cancer?	272	68
19	Can you share any personal stories or experiences related to lung cancer that have influenced your awareness?	55	13.75
20	In your opinion, what more can be done to increase lung cancer awareness and knowledge in our community?	180	45

Table 2: Knowledge scores towards Lung Cancer among study participants

Category (Marks)	Frequency (n = 400)	%
Very Good (16-20)	102	25.5
Good (12-15)	144	36
Fair(8-11)	103	25.75
Poor(<8)	51	12.75

Approximately 25.5% exhibited very good knowledge (16-20 marks), and an additional 36% demonstrated good knowledge (12-15 marks). However, it is noteworthy that 38.25% of the participants had fair to poor knowledge scores, suggesting a need for targeted interventions to enhance awareness in certain segments of the population.

These findings align with similar studies conducted in India. A study by Bansal *et al.* [10] in an urban setting reported comparable variations in knowledge levels, emphasizing the necessity of tailoring awareness campaigns to specific demographics. Additionally, Malik *et al.* [11] highlighted the impact of regional variations on cancer awareness, supporting the contextual importance of our study within the unique landscape of District *Johor Bahru*.

Analyzing specific knowledge domains, our results highlight both strengths and areas for improvement. Notably, participants exhibited robust awareness regarding the nature of lung cancer, primary risk factors, and common signs and symptoms. However, there were notable gaps in understanding topics such as the benefits of lung cancer screenings, different types and stages of lung cancer, and available resources for affected individuals and their families.

These findings are consistent with studies conducted globally. For instance, a study by Wardle *et al.* [12] identified similar gaps in knowledge about the benefits of

early detection and different types of lung cancer. Addressing these specific gaps is crucial for developing targeted educational interventions tailored to the unique needs of the District *Johor Bahru* population.

Comparing our findings with global and national perspectives, the study participants in District *Johor Bahru* exhibit knowledge levels that are on par with or slightly below global averages. The WHO [1,2] emphasizes the importance of regional interventions to address the rising incidence of lung cancer. Our study contributes to this imperative by providing localized insights into the awareness landscape, supporting the call for tailored regional health communication strategies.

The identified gaps in knowledge underscore the need for targeted public health interventions in District *Johor Bahru*. Based on our findings, interventions should focus on enhancing awareness about the benefits of lung cancer screenings, different types and stages of lung cancer, and available resources for affected individuals and their families. Leveraging community-based education initiatives, as emphasized in Indian studies [13], can empower individuals to recognize early signs and seek timely medical attention.

### Limitations and Future Directions

It is crucial to acknowledge the limitations of the study, including its cross-sectional nature and reliance on self-reported data. Future research could employ longitudinal

designs to track changes in awareness over time and incorporate objective measures of knowledge. Additionally, qualitative studies could provide deeper insights into the cultural and social factors influencing awareness levels.

## CONCLUSIONS

In conclusion, this study provides a nuanced understanding of lung cancer awareness among the residents of District *Johor Bahru, Malaysia*, emphasizing both commendable knowledge levels in certain domains and crucial gaps requiring targeted interventions. The findings highlight the significance of tailored health communication strategies, particularly in addressing specific knowledge disparities related to screenings, types, and stages of lung cancer. The results contribute valuable insights to the global and national discourse on cancer awareness, aligning with the World Health Organization's call for region-specific interventions. Moving forward, public health initiatives in District *Johor Bahru* should focus on empowering the community through community-based education, leveraging strengths identified in this study, and addressing identified knowledge gaps. Ultimately, by bridging these gaps, we aspire to enhance early detection, improve patient outcomes, and alleviate the burden of lung cancer in this unique socio-cultural context.

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